THE LANCET.

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CONTENTS.

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THE HARVEIAN ORATION on Advances in Knowledge Regarding the Circulation and Attributes of the Blood Since Harvey's Time. Delivered before the Royal College of Physicians of London on Oct. 19th, 1914, by Sir RICHARD DOUGLAS POWELL, Bart., K.C.V.O., M.D., F.R.C.P., LL.D., Physician in Ordinary to the King; Consulting Physician to the Middlesex Hospital and the Hospital for Consumption and Diseases of the Chest, Brompton, &c. —(*To be concluded*) 979

ORIGINAL ARTICLES.

Shell Wounds in Modern Naval Warfare. By BRYAN PICK, M.R.C.S. Eng., L.R.C.P. Lond., Staff Surgeon, Royal Navy; R. A. RANKINE, M.B., B.S. Lond., Surgeon, Royal Navy; and J. LAMBERT, M.A., M.D. Cantab., M.R.C.S. Eng., Surgeon, Royal Navy..... 984

Pyloric Obstruction in Infants. By CHARLES H. MILLER, M.D. Cantab., M.R.C.P. Lond., Assistant Physician, London Hospital; Physician, Victoria Hospital for Children, Chelsea..... 987

Prognosis in Cancer of the Tongue. By WILFRED TROTTER, M.S. Lond., F.R.C.S. Eng., Surgeon to University College Hospital 989

Further Notes upon the Wounded in the Present Campaign. By G. H. MAKINS, C.B., F.R.C.S. Eng., Colonel, A.M.S.; Consulting Surgeon to the Forces Overseas..... 1005

Epsom and Ewell War Hospital. By EDMUND OWEN, F.R.C.S. Eng., Surgeon to the French Hospital, London 1007

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Malignant Disease of the Lung. By HUGH N. TAYLOR, M.A. Cantab., M.D. Dub., F.R.C.S. Edin., Surgeon, Ebbw Vale Hospital, Monmouthshire. — (*Illustrated*) 993

Note on Limitation of the After-pain of Quinine Injections. By A. G. PETER, M.B., Ch.B. Aberd..... 994

MEDICAL SOCIETIES.

AL SOCIETY OF MEDICINE:
ECTION OF OBSTETRICS AND GYNÆCOLOGY: — Exhibition of Cases and Specimens.—Making Intestinal Fistula after Operation upon the Abdomen..... 994

REVIEWS AND NOTICES OF BOOKS.

The Practice of Surgery. By Russell J. Howard, M.S. Lond., F.R.C.S. Eng..... 995

Serology of Nervous and Mental Diseases. By D. M. Kaplan, M.D. 995

Development and Anatomy of the Nasal Accessory Sinuses in Man. By Warren B. Davis, M.D..... 996

Scrofulosis. By Professor G. Cornet. Translated by J. H. Bullock, M.D. Brux..... 996

L'Appareil Thymo Thyroïdien: Thyroïdes, Parathyroïdes, Thymus. Anatomie, Physiologie, Pathologie, Déductions Thérapeutiques. Par L. Launoy, D.Sc..... 997

The Psychopathology of Everyday Life. By Professor Dr. Sigmund Freud, LL.D. Authorised English edition, with Introduction, by A. A. Brill, Ph.B., M.D..... 997

The Diagnosis and Treatment of Digestive Diseases: a Practical Treatise for Students and Practitioners. By George M. Niles, M.D.... 998

A Surgical Handbook for the Use of Students, Practitioners, House Surgeons, and Dressers. By Francis M. Caird, M.B. Edin., F.R.C.S. Edin., and Charles W. Cathcart, M.B. Edin., F.R.C.S. Eng. and Edin. Sixteenth edition..... 998

Industrial Training, with Special Reference to the Conditions Prevailing in London. By N. B. Dearle, M.A. 998

On the Effects of Volcanic Action in the Production of Epidemic Diseases in the Animal and in the Vegetable Creation, and in the Production of Hurricanes and Abnormal Atmospherical Vicissitudes. By H. J. Johnston-Lavis, M.D., D.Sc., M.R.C.S. Eng., L.S.A. Lond., F.G.S..... 998

Quarterly Journal of Microscopic Science. Vol. LX..... 999

REPORTS AND ANALYTICAL RECORDS FROM THE LANCET LABORATORY.

Bovinine 999

Drakenstein Wine..... 999

Plasmon Oat Cocoa..... 999

(1) Bananina; and (2) Barley Flour..... 999

Vocalzone Preparations 1000

Maple Sugar and Syrup..... 1000

NEW INVENTIONS.

An Aid to the Radiography of the Pituitary Fossa.—(*Illustrated*)..... 1000

LEADING ARTICLES.

THE PUBLIC HEALTH SERVICE AND THE NATIONAL CRISIS.. 1001

THE WAR AND THE DISLOCATION OF PRIVATE PRACTICE 1001

ANNOTATIONS.

Nature and Nurture in Mental Development 1002

The Contamination of Army Uniforms 1003

The Danger of Diffusion of Typhoid Fever and Cholera by Oysters and its Remedy.. 1003

"Tippermalluch's Receipts"... 1004

The Medical Register 1004

Plague Clouds in Southern Europe..... 1005

VITAL STATISTICS:

Health of English Towns ... 1013

Health of Scotch Towns..... 1014

Health of Irish Towns..... 1014

Vital Statistics of London during September, 1914.... 1014

Analysis of Sickness and Mortality Statistics in London during September, 1914 1015

SPECIAL ARTICLES.

The Claims of British Spas. IV. Droitwich.—(*To be continued*) 1009

A Monthly Record of Atmospheric Pollution 1010

The South African Institute for Medical Research. — (*Illustrated*) 1011

Prisons Commissioners' Report 1012

The Services: Royal Army Medical Corps. — Supplementary to Regular Units or Corps. — Royal Naval Volunteer Reserve.—Special Reserve of Officers.—Territorial Force.—Naval Medical Supplemental Fund. — Deaths in the Services..... 1013

CORRESPONDENCE.

The Nursing of the Wounded (The Hon. Arthur Stanley)... 1016

The Medical Register (Mr. A. J. Cockington)..... 1016

Multiple Round-celled Sarcoma (Sir H. Bryan Donkin) 1017

Imperfections in the Cumberland Infirmary (Sir Henry C. Burdett)..... 1017

The Treatment of Tetanus (Dr. Eric W. Sheaf)..... 1017

In the Trail of War (Col. W. G. King, I.M.S., retd.)..... 1018

Prevention and Treatment of Chafes by Boots (Lieut.-Col. A. R. S. Anderson, I.M.S.)... 1018

Wanted, a Diagnosis (Mr. E. Norman Butler)..... 1018

Pain in the Heel (Dr. Seymour Taylor, Dr. Chas. W. Budden) 1028

THE WAR.

Medical Headquarters Staff Appointments..... 1019

Mentioned in Despatches..... 1019

The Casualty List..... 1020

Gonorrhœa among the Troops 1020

British Learning and the War 1021

The Health of the Home Army; a Representative Sanitary Service..... 1021

Government Vaccines from the Inoculation Department of St. Mary's Hospital..... 1021

The Wounded in the War..... 1024

Work of the British Red Cross Society 1024

Wounded at London Hospitals 1024

Edinburgh in War Time..... 1024

Australia and the War..... 1025

The Queen's Canadian Military Hospital..... 1025

London Panel Practitioners' Gift 1025

Belgian Wounded at Hasler ... 1025

OBITUARY OF THE WAR:

Harry Sherwood Ranken, M.B., Ch.B. Glasg., M.R.C.P. Lond., Capt., R.A.M.C. 1022

Thomas Scatchard, L.M.S.S.A., Capt., R.A.M.C. 1022

John Forbes O'Connell, M.B., B.S. Lond., Lieut., R.A.M.C. 1022

James Laidlaw Huggan, M.B., Ch.B. Edin., Lieut., R.A.M.C. 1023

MEDICAL NEWS.

Belfast Medical School..... 994

Tuberculosis Officer for Rossshire 993

University of Aberdeen: Opening of Winter Session..... 993

Vaccination in Bristol 995

Plymouth Insurance Committee..... 1007

Royal Academy of Medicine in Ireland 1009

Lectures on Infant Care..... 1009

Donations and Bequests..... 1016

A Point as to Milk Adulteration 1016

Medical Magistrate..... 1025

University of Oxford: Degrees conferred 1025

University of Cambridge: Degrees conferred 1025

Royal Faculty of Physicians and Surgeons, Glasgow: Pass-list 1025

Society of Apothecaries of London 1025

Royal Sanitary Institute 1025

Charing Cross Hospital: the Huxley Lecture..... 1025

Society of Medical Officers of Health 1025

Hunterian Society..... 1025

Royal College of Physicians of Ireland..... 1026

The Child-Study Society, London 1026

Appointments..... 1026

Vacancies..... 1026

Births, Marriages, and Deaths 1027

Notes, Short Comments, and Answers to Correspondents 1028

Meteorological Readings..... 1028

Medical Diary 1029

Acknowledgment of Communications received..... 1030

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

APPLETON & CO.:— PAGE
Behan..... Pain 6

ARNOLD:—
Andrews .. Midwifery for Nurses 3
Beveridge & Wanhill .. Practical Hygiene .. 3
Diseases of Children 3
Howard .... Practice of Surgery .. 3
" .... Surgical Nursing and the Principles of Surgery for Nurses. 3
Melville .... Military Hygiene and Sanitation 3
Savill ..... A System of Clinical Medicine 3

BAILLIERE, TINDALL & COX:—
Bigg ..... Indigestion, Constipation—Liver Disorder 6
Blumfeld .. Anæsthetics .. Cover 1
Brown .... Physiological Principles ..... Cover 1
Bruce ..... Sciatica ..... Cover 1
Calot ..... Indispensable Orthopædics ..... Cover 1
Freyer .... Enlargement of the Prostate .... Cover 1
" .... Surgical Diseases of the Urinary Organs Cover 1
Younger .. Insanity in Everyday Practice .... Cover 1

BLANCHARD COMPANY:—
Faulkner .. The Tonsils and the Voice..... 8

CAMBRIDGE UNIVERSITY PRESS:
Purvis & Hodgson.. Chemical Examination of Water, &c. Cover 1

CHURCHILL, J. & A.:— PAGE
Cushny .... Pharmacology and Therapeutics 7
Haig ..... Uric Acid in the Clinic 7
" ..... Uric Acid as a Factor, &c. 7
" ..... Uric Acid: an Epitome 7
" ..... Diet and Food..... 7
Jellett..... A Short Practice of Midwifery 7
" ..... A Short Practice of Gynæcology 7
" ..... Short Practice of Midwifery for Nurses .. 7
Jessop .... Ophthalmic Surgery and Medicine 7
Maylard .. Practice and Problem in Abdominal Surgery 7
Parsons .... Diseases of the Eye.. 7
Swayne .... Obstetric Aphorisms. 7
Taylor .... Operative Surgery .. 7
Thorne, Bezly .... Schott Methods of the Treatment of Chronic Diseases of the Heart 6
Tomes..... Dental Anatomy 7
Turner & Stewart .. Text-Book of Nervous Diseases 7
Whittaker.. Essentials of Surface Anatomy..... 7

FROWDE AND HODDER & STOUGHTON:—
Jamieson .. The Care of the Skin in Health.... Cover 1

LEWIS:—
Armstrong. I. K. Therapy, with Special Reference to Tuberculosis. Cover 1
Buxton .... Anæsthetics .. Cover 1

LEWIS—(Continued). PAGE
Millard .... Vaccination Question in the Light of Modern Experience Cover 1
Oliver, Sir T. .... Lead Poisoning Cover 1

LONDON PUBLICITY CO.:—
Reinhardt-Rutland.. Mental Therapeutics Cover 1

LONGMANS, GREEN & CO.:—
Hare ..... Food Factor in Disease ..... Cover 1

MACMILLAN & CO.:—
Adami & McCrae .. Text-Book of Pathology for Students of Medicine..... 8
Ballance .. Cerebral Decompression in Ordinary Practice 6
Bainbridge. The Cancer Problem. 8
Menneli .... Treatment of Fractures by Mobilisation and Massage.. 8
Milligan, Sir W., & Wingrave. Practical Handbook of Diseases of the Ear 5
New System of Medicine 8
Paton ..... Nervous & Chemical Regulators of Metabolism 5
Shenton.... Disease in Bone and its Detection by the X-Rays 5

MEDICAL PUBLISHING CO.:—
Lane, Sir A. .... Operative Treatment of Fractures. Cover 1

NISBET & CO.:— PAGE
Romer & Creasy .. Bonesetting and the Treatment of Painful Joints.... Cover 1

OPHTHALMOSCOPE PRESS:—
Stephenson. Eye-Strain in Everyday Practice. Cover 1

SAUNDERS COMPANY:—
Anders & Boston .. Medical Diagnosis Cover 1
Anders & Boston .. Medical Diagnosis .. 9
Bandler .... Medical Gynæcology.. 9
Bastedo .... Materia Medica, Pharmacology, Therapeutics, &c. 9
Grulee .... Infant Feeding 9

THE LANCET:—
The Territorial Medical Service .. 8

UNIVERSITY OF LONDON PRESS:
Bernstein .. Applied Pathology .. 8
Bidwell .... Minor Surgery 8
Cole ..... Mental Diseases 8
Fox ..... The Principles and Practice of Medical Hydrology 8

WRIGHT & SONS (BRISTOL):—
Lejars' Urgent Surgery..... 6
Mummery .. Diseases of the Colon and their Surgical Treatment .. Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—
Stammering 8
Kelley—
Stammering 8
Matthews Bros.—
Wood: Application of Trusses 8

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Ancoats Hospital, Manchester.... 50
Ayr District Asylum 52
Birmingham City Asylum, Rubery-hill 47
Birmingham Union—Dudley-road Infirmary 49
Birmingham Union—Erdington Infirmary, &c. 49
Birmingham Union—Selly Oak Infirmary 49
Borough Hospital, Birkenhead.... 47
Bristol City Asylum, Fishponds .. 47
Bury and District Joint Hospital Board 49
Chelsea Hospital for Women 47
Cheshire Education Committee .. 49
Chesterfield and North Derbyshire Hospital 50
Children's Hospital, Sheffield .. 49
City of Westminster Union Infirmary 48
Corporation of Bootle Hospital for Infectious Diseases 51
County Asylum, Prestwich, Manchester 47
County Borough of Gt. Yarmouth 48
County Borough of South Shields. 48
County Borough of Walsall 50
County and City Asylum, Powick.. 47
Derbyshire County Council 51
Durham County Council 49
Elder Dempster & Co., Liverpool.. 52
Evelina Hospital for Sick Children 48
Exeter City Asylum 46
Free Eye Hospital, Southampton.. 47
Gateshead Asylum 49
Glamorgan County Council 48
Gloucestershire Royal Infirmary and Eye Institution..... 49
Great Yarmouth Hospital 49
Harrogate Infirmary 48
Harrow-on-the-Hill Urban District Council 50
Haywood Hospital, Burslem 49
Hereford County and City Asylum 49
Herts County Asylum, St. Albans. 49
Hospital for Sick Children, Newcastle-upon-Tyne 48
Hospital for Women and Children, Leeds 51
Huddersfield Royal Infirmary 48
Hull Royal Infirmary 47
Hulme Dispensary, Manchester .. 47
Infectious Hospitals Service of Metropolitan Asylums Board .. 47
Ingham Infirmary and South Shields and Westoe Dispensary. 48
Kent County Asylum, Chartham.. 47
Leicester Royal Infirmary 48
Lynn and West Norfolk Hospital. 46
Manchester Northern Hospital for Women and Children 46
Manchester Royal Eye Hospital .. 52

APPOINTMENTS—(Continued).
Metropolitan Ear, Nose, and Throat Hospital 49
Miller General Hospital for South-East London 51
Mount Vernon Hospital for Consumption 46
Newcastle-upon-Tyne, &c., Sanatorium for Consumptives 51
Noble's Isle of Man Hospital 52
North Ormesby Hospital, Middlesbrough 51
Northampton Co. Asylum, Northamptonshire 46
Northampton General Hospital .. 50
Nottingham Children's Hospital.. 51
Nottingham General Hospital 47
Oldham Royal Infirmary 50
Paddington Board of Guardians.. 53
Paddington Infirmary 52
Parish of St. Giles Infirmary, Camberwell 50
Preston Royal Infirmary 48
Putney Hospital 51
Royal Cornwall Infirmary, Truro.. 47
Royal Eye Hospital, Southwark .. 51
Royal Gwent Hospital 48
Royal Halifax Infirmary 51
Royal Infirmary, Sheffield 48
Royal Infirmary, Sunderland 48
Royal Isle of Wight County Hospital, Ryde 51
Royal Victoria Infirmary, Newcastle-upon-Tyne 49
Royal Waterloo Hospital for Children and Women 47
Royal West Sussex Hospital, Chichester 50
St. Bartholomew's Hospital, Rochester 51
St. Mary's Hospital for Women and Children, Plaistow 47
St. Marylebone General Dispensary 48
St. Paul's Eye Hospital, Liverpool 52
Salford Royal Hospital 48
Salisbury General Infirmary 48
Seamen's Hospital Society 47
Southwark Union 51
Stirling District Asylum, Larbert. 52
Stroud General Hospital 47
Taunton and Somerset Hospital .. 50
Throat Hospital, Golden-square .. 51
Township of Manchester Institution, Crumpsall 51
Tunbridge Wells General Hospital 50
Walsall and District Hospital 46
Warrington Infirmary and Dispensary 48
West Ham and Eastern General Hospital 47
West Riding Asylum, Wakefield .. 49
Western Dispensary, Westminster 51

APPOINTMENTS—(Continued).
Whitechapel Dispensary for the Prevention of Consumption 49
Wolverhampton and Staffordshire General Hospital 50
Worcestershire Asylum, Bromsgrove 50

ASSISTANCIES, MEDICAL:—
Arnold & Sons, Giltspur-street.... 52
Dr., Southampton-row 52
Kerr, Bury 52
L, South Molton-street 52
Lee & Martin, Birmingham 52
Medicus, Liverpool 53
Neave, Earl's Court 52
No. 235, L.O., Strand 52
No. 236, L.O., Strand 52
No. 237, L.O., Strand 53
Scholastic, Clerical, &c., Association, Craven-street 52
Turner, Adam-street 52
44, Walter House, Strand 53
Woodcock, Ryland, & Parker, Bloomsbury-square 52

ASYLUMS, HOMES &c.:—
Abbotswood House, Cinderford .. 43
Ashwood House, Kingswinford .. 45
Barnsley Hall, Bromsgrove 45
Barnwood House Hospital 41
Bishopstone House, Bedford..... 40
Bootham Park, York 40
Brunton House, Lancaster 46
Buntingford House Retreat, Buntingford 45
Camberwell House, Peckham-road 42
Cheadle Royal..... 41
City of London Mental Hospital, Stone..... 46
Clarence Lodge, Clapham Park .. 40
Colthurst House, Alderley Edge .. 40
Coppice, The, Nottingham 41
Dairymple House, Rickmansworth 45
Dartmoor Sanatorium 44
David Lewis Colony, Alderley Edge 40
Dr. H. L., Hampstead 46
Duff House, Banff..... 44
Ghyllwoods 45
Grove House, Church Stretton.... 41
Grove, The, Caton, Norwich..... 41
Haydock Lodge, Newton-le-Willows 42
Haynes, Brentwood 46
Heigham Hall, Norwich 41
Home for Epileptics, Maghull 46
Invernith Sanatorium, Colinsburgh 43
Kingsdown House, Box..... 40
London Fever Hospital..... 41
Mailing Place, Kent..... 41
Manna Mead, Blackheath 46
Melbourne House, Leicester 43
Meadip Hills Sanatorium 45

ASYLUMS—(Continued).
Middleton Hall, Co. Durham..... 45
Moat House, Tamworth 41
Mandesley Sanatorium..... 44
Newmains Retreat, Lanarkshire.. 42
Nordrach-on-Dee, Banchory 44
Northumberland House, Finsbury Park 40
Northwoods, Winterbourne 42
Norwood Sanatorium, Ltd..... 43
No. 236, L.O., Strand 46
Peckham House..... 42
Pendyffryn Hall Sanatorium, Nordrach-in-Wales 43
Plympton House, Plympton 41
Portsmouth Corporation Mental Hospital 40
Poultney, Tarkastad, South Africa 46
St. Andrew's Hospital, Dollis Hill 46
St. Andrew's Hospital, Northampton 41
St. Luke's Hospital for Mental Diseases 45
Shaftesbury House, Formby-by-the-Sea 42
Springfield House Private Asylum, Bedford 45
Stretton House, Church Stretton. 41
The General Manager, Craven-street 46
The Grange, near Rotherham 41
Vale of Clwyd Sanatorium 45
Warneford Asylum, Oxford..... 45
Wye House, Buxton 41
Yarrow Convalescent Home, Broadstairs 42

COMPANIONS:—
Companion, Tunbridge Wells 52

HEALTH RESORTS, BATHS, &c.:—
Droitwich 40
Peebles Hotel Hydro 40
Smedley's, Matlock 40

HOMES WANTED:—
Turner, Adam-street 46

HOTELS:—
Knowle Hotel, Sidmouth..... 45

HOUSE & ESTATE AGENTS:—
Knight, Frank, & Rutley, Hanover-square 55

LIFE & FIRE ASSURANCES, &c.:—
Prudential 3

MASSAGE:—
Associated Male Nurses and Masseurs 38
London School of Massage 40

MEDICAL ACCOUNTANTS, &c.:—
Turner..... 55

For continuation of Index to Official and General Announcements, and Trade and Miscellaneous Advertisements, see page 4.

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INDEX—(CONTINUED).

MEDICAL AGENTS:— PAGE
Fieldhall, Limited 54
Manchester Clerical, &c., Association 55
Medical Agency 54
Moore & Co. 55
Needes, Herbert 54
Needes, J. C. 54
Peacock & Hadley 54
Scholastic, Clerical, &c., Association 54
Turner 54

MEDICAL SCHOOLS:— (LONDON.)
London School of Clinical Medicine 57
West London Post-Graduate College 57

NURSING INSTITUTES:— PAGE
Co-operation of Temperance Male and Female Nurses 39
General Nursing Association 40
Hospital for Sick Children, Great Ormond-street 40
Leeds Trained Nurses' Institution 39
London Nurses' Association 39
London Temperance Male and Female Nurses Co-operation 39
Male Nurses Temperance Co-operation 38
Mental Nurses' Co-operation 40
Nurses' Co-operation, Portland-place 39
Registered Nurses' Society 40
St. John's House 40
St. Luke's Hospital 39
Temperance Association of Male Nurses, Ltd. 39

NURSING INST.—(Continued). PAGE
Temperance Male Nurses Co-operation 38
The Retreat, York 39

OFFICIAL NOTICES:—
Central London Throat, Nose and Ear Hospital 37
City of London Lying-in Hospital 37
Income Tax Protection and Relief Association 38
London School of Tropical Medicine 37
Queen Charlotte's Lying-in Hos. .. 37
Royal College of Surgeons of England 37
Royal London Ophthalmic Hos 37
Royal Society of Medicine.. Cover i
Tuberculin Dispensary 37
York-road General Lying-in Hospital, Lambeth 37

PARTNERSHIPS & PRACTICES:— PAGE
Arnold & Sons, Giltspur-street 55
Manchester Clerical, Medical, and Scholastic Association 55
Peacock & Hadley, Craven-street. 55
Roney & Co., New Broad-street .. 55
Turner, Adam-street 55

RAILWAY & STEAMSHIP CO.'S
New Zealand Shipping Co. 38

SCHOOLS, PREPARATORY, &c.:—
Briti... and Foreign Schools Ag..., Manchester 57
The G...ge, Folkestone 57

TUTORS & LECTURERS:—
Med. Corres. College ..... 38 | Gemmell 38
Weymouth .. 58

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—
Invalid Carriages 10

BOTTLE MERCHANTS:—
Isaacs 11

CARRIAGES, MOTORS, &c.:—
Armstrong—
Coachmen's, Grooms', and Chauffeurs' Liveries 10

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Allenburys Cod-Liver Oil 25
Bynol 25
Bynin Emulsion 25
Byno Cascada 24
Castor Oil 24
Armbrecht, Nelson & Co.—
Radiam Emanation Water.... 24
Bishop, Ltd.—
Hydropyrin ..... Cover iii
Kalmopyrin ..... ,, iii
British Oxygen Co.—
Oxygen 24
Browning & Co.—
Semprolin Petroleum Preparations 29
Bullock & Co.—
Pepdine Pearl 25
Acid Glycerine of Pepsine 25
Burroughs Wellcome & Co.—
Vaporole Brand Iodine Tincture 26
Tabloid Brand Medicine Pocket-Cases 27
Carnrick & Co.—
Liquid Peptonoids 28
Dry Peptonoids 28
Christy & Co.—
Glyco-Heroin 33
Clay, Paget & Co.—
Glycolactophos 18
Duncan, Flockhart & Co.—
Modern Pharmaceutical Preparations 19
Fellows Medical Manufacturing Co., Ltd.—
Fellows' Syrup 56
Gale & Co., Ltd.—
Entrapure 33
Sugosamin 33
,, Antiseptics 33

CHEMISTS—(Continued).
Hewlett & Son—
Mist. Damianæ Co. 58
H. K. Mulford Company—
Mulford Standard Specialties . 22
Hogg & Son—
Protein Nerve Food 10
Hudson's Eumenthol Chemical Co.—
Eumenthol Jujubes 32
Mactarian & Co.—
Chloroform 34
Ether 34
Listerian Dressings and Catguts 34
Parke, Davis & Co.—
The Treatment of Tetanus by Serum and Chloretone 21
Raimes & Co.—
Slinger's Nutrient Suppositories 38
Tidman's Sea Salt 34
Waterbury Chemical Company—
Cod Liver Oil Compound Cover iii
Pinoxyme ..... ,, iii
Welford & Sons—
Sauermilch ..... Cover iii
Willows, Francis, Butler & Thompson, Ltd.—
Mackey's Glyceroles 18

DISINFECTANTS:—
Allen & Hanburys
Medical Izal 23
Condy's Fluid 36
Jeyes' Sanitary Compounds Co.—
Jeyes' Disinfectants .... Cover ii
Pearson's Antiseptic Company—
Pacelni 10
Quilbell Bros., Ltd.—
Kerol 33
,, Capsules 33
Sanitas Co.—
Sanitas-Sypol 30
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Mellin's Food, Ltd.—
Mellin's Food 32
Southall Bros. & Barclay—
Vitafer 16, 17
Therapeutic Foods Co.—
Energen New Diabetic Bread.. 15
Valentine's Meat Juice Co.—
Meat Juice ..... Cover iv
Van Abbot & Sons—
Foods for Diabetics and Obesity 36

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Improved Martin's Sphygmomanometer 13
Hospitals and General Contracts Co.—
Instruments, Dressings, Surgical Furniture, &c. 29
Leslies, Ltd.—
Leslies Zincoplast ..... Cover ii
Millikin & Lawley—
Osteology, &c. 14

MED. APPLIANCES—(Continued).
Robinson & Sons—
Capsicum Gamgee Tissue 11
Surgical Manufacturing Co.—
"Surgman" High Pressure Steriliser 12
Timpson & Co.—
Sterile Catgut 14
Aseptic Catgut Ligatures 14

MINERAL WATERS:—
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Hercules Water 36
Mondaris 36

OPTICIANS:—
Bruce, Green & Co.—
The Wyche Portable Lamp 14
Handy Portable Trial Cases .. 14

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Dowie & Marshall—
Hygienic Bootmakers.. Cover ii
Holdens—
Natureform Marching Boots .. 11

VACCINE LYMPH:—
Jenner Institute for Calf Lymph.. 10
Renner's Calf Lymph Establishment 10
Roberts & Co.—
Chaumier's Calf Lymph 10

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The Harveian Oration

ON

ADVANCES IN KNOWLEDGE REGARDING THE CIRCULATION AND ATTRIBUTES OF THE BLOOD SINCE HARVEY'S TIME.

"FOR THE LIFE OF ALL FLESH IS THE BLOOD THEREOF."

Delivered before the Royal College of Physicians of London on Oct. 19th, 1914.

BY SIR RICHARD DOUGLAS POWELL, BART., K.C.V.O., M.D., F.R.C.P., LL.D.,

PHYSICIAN IN ORDINARY TO THE KING; CONSULTING PHYSICIAN TO THE MIDDLESEX HOSPITAL AND THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON, ETC.

MR. PRESIDENT, FELLOWS, MY LORDS, AND GENTLEMEN,—Some of us may recall the picture by W. Yeames, R.A., portraying our great master Harvey absorbed in study whilst the battle of Edge Hill, timorously watched by his Royal pupils, is raging within a bowshot. So may we now, perhaps without reproach of cynicism, detach ourselves for an hour in contemplation of some of the beneficent gifts to medicine that have ensued from Harvey's work, whilst we with well-nigh the whole world are steeped to the skies in a war to which science has given the last touch of horror and carnage.

INTRODUCTORY REMARKS.

By the request with which, Mr. President, you have honoured me that I should give the Harveian Oration this year you have placed me under deep obligation, for you have put me in communication with the spirit of Harvey—a great man—as it shines out in his works, as it sheds light upon the thoughts of the centuries that went before, and as it illumines the paths of progress that radiate onwards from his time. And although, Sir, your command is the 258th that has reached the Fellows of this College, yet so numerous are the branches of thought and inquiry that have emanated from Harvey's discovery, as the spreading tree from a single pregnant germ, and so ever living and extending is each branch of that tree of knowledge, that year by year some advancement has been found with a freshness of interest worthy of record in this College. In my respectful response to your invitation I will endeavour to trace the progress and growth of one or two of those branches of knowledge that have emanated from Harvey's root, and have reached our time with their new buds of fresh development, each endowed with a spirit of further growth and increase.

Dr. Edmund Parkes, my revered teacher, in his Harveian Oration, the latest words of his beautiful life, which were read to this College by Sir W. Jenner, commences with the question, Will the name of Harvey be echoed down the stream of time with deathless fame? And his answer is, Yes. Harvey's discovery is a landmark for all time as "one of those cardinal discoveries which lie at the very foundation of physiology and medicine." Parkes proceeds to say: "The full interpretation of this great discovery is even now not given, for we are still painfully learning what the blood does in that marvellous circuit which never ends, yet ever recommences."[1] It is this theme of what the blood does that I would wish chiefly to pervade my address to-day.

[1] Harveian Oration, 1876, E. A. Parkes.

Sir W. Church observes that although the knowledge of anatomy reached a considerable degree of perfection at the hands of Aristotle, Galen, and later in the sixteenth and seventeenth centuries, of Silvius, Vesalius, Fallopius, and Fabricius, yet, "from the time of Aristotle to that of Harvey no advance was made in physiological knowledge, if indeed it had not receded, and that as Aristotle must be regarded as the first of the biologists, so Harvey was the founder of physiology."[2] The late Dr. Ogle remarks: "And upon Harvey's discovery as a new 'primum mobile' rests, in fine, all our knowledge of pathology, and much of our knowledge of the action of remedies."[3]

The Master Mind and Scientific Discoveries.

The visitation of genius may in a sense be defined as a divine touch in a ready environment. We do not know at exactly what period Harvey attained the conception that quickened and directed his life's work. Dr. Ogle was very right in disputing the statement of Willis that the discovery of the circulation came fully from him. "This view," Ogle continues, "cannot be held.' The discovery was, like all other scientific discoveries, the result of the growth of germs sown long before. It was not the work of one mind."[4] True; but it required the master mind of Harvey to collect and collate the numerous detached observations of his teachers and contemporaries to a discovery he had already adumbrated. Such is the case, perhaps, with regard to all epoch-marking discoveries: Newton's conception of gravitation, Priestley's oxygen, Simpson's anæsthetics, Lister's antiseptic system, Koch's discovery of the bacillus tuberculosis were all effected in an atmosphere of thought and experiment highly charged with expectation and speculation in the direction of the particular discovery.

It is said by the Psalmist, "When the breath goeth out of a man he returns to his dust and all his thoughts perish." But whilst the man may think no more, his thoughts live for good or evil to strive with other thought in the sentient atmosphere that gathers about the centres of civilisation and progress.

> Our thoughts are ours, their ends none of our own.[5]

Harvey's sentient atmosphere was shared by great anatomists and ardent pioneers of thought. Servetus had already described correctly the circulation through the lungs, although Harvey never saw his work. This fecundity of thought is finely expressed by Shakespeare in the words of King Richard—

> My brain I'll prove the female to my soul;
> My soul, the father; and these two beget
> A generation of still breeding thoughts,
> And these same thoughts people this little world;
> In humours, like the people of this world,
> For no thought is contented.[6]

The Character of Harvey.

It is unnecessary again here to describe—as has often been done—the features and character of Harvey. It must be said, however, that he was a man dominated by an ardent and imperious spirit. His mind was naturally practical and forward looking—a mind educated by wide culture and reading from the old authors, especially Aristotle, Hippocrates, and Galen. He read all

[2] Harveian Oration, 1896, Sir W. Church, pp. 14 and 15.
[3] Harveian Oration, 1880, John W. Ogle, p. 25.
[4] Ibid.
[5] Hamlet, Act II., Scene 2.
[6] King Richard II., Act V., Scene 5.

with his critical faculty well awake; and in regard to physiology and medicine, which were the objects of his life's work, he accepted nothing on mere authority, but by logical analysis and by actual experiment tested all the conclusions which interested him. His outlook was ever onward from laboriously accredited or discovered facts to the conclusions to which they pointed and to the fresh inquiries and experiments they might prompt. In this respect he was in marked contrast to his great contemporary in this College, Sir Thomas Browne; and I say this in no disparagement to Sir Thomas, who was indeed Harvey's superior in scholarship. The two minds were essentially different—the one contemplative, retro- and introspective, the other practical, inquiring, strenuously objective and forward-looking; each is supplemental to the other, but perhaps an impetus was given to the objective order of mind with the revival of learning under conditions of increasing freedom from the restraint of ecclesiasticism. We are fortunate in having both classes of mind present with us to-day. We may in our own College recall the names of Linacre, Sir Thomas Browne, Richard Mead, and Caius for their purity of language and enrichment of literature from the stores of traditional learning; whilst those of Harvey, Sydenham, Willis, Bright, Addison, Jenner, and Jackson may be especially remembered amongst the great pioneers and teachers of medicine.

Not only in medicine but equally in other sciences—including political science—may this characteristic, pregnant of the future, be observed. As instances of recent pioneers of action may be mentioned the names of Lord Strathcona, Cecil Rhodes, and Joseph Chamberlain, amongst others, who were "for ever moving forward with reverence for the past, with care to guard its great traditions, but ever seeking in the future something better, something nobler, something greater than that which we now enjoy."[7]

The Medical Profession and New Discoveries.

We hear it often said of the medical profession that new discoveries are met by captious criticism and ungenerous distrust. This has been the subject of comment by many Harveian orators. Sir James Alderson remarks in reference to the obstruction and neglect with which Harvey's work was greeted: "Yet it may be questioned whether difficulties in the establishment of any new truth ought to be esteemed a hardship. New knowledge must be proved; and too facile acceptance can be wished for only by promulgators of error."[8] Sir Edward Cook in his "Life of Florence Nightingale" makes the remark: "Controversy is perennial between those who ascribe the course of political or social history mainly to great men, and those who ascribe it rather to streams of tendency. It is less open to controversy to say that the great men who leave the more permanent mark upon history are those whose genius conforms to the spirit of their time, but who are yet a little in advance of their age."[9]

Controversy quickens thought and strengthens understanding, and all great pioneers, like Harvey, Darwin, Spencer Wells, and Lister, have shown their recognition of this truth. This is the true attitude, especially for pioneers in medical science. No one in a grave and responsible profession can expect to promulgate a new doctrine carrying with it, it may be, fateful results to human beings, without being prepared to sustain with equanimity the ordeal of ardent criticism, to suffer patiently even the obstruction of fools, until he can convince by demonstration the minds of all. Harvey has given to us a great lesson on this patient striving with criticism, pursuing his arguments without bitterness, and strengthening them to conviction with sweet and laborious persuasiveness.

The Origin of Life.

Harvey speculated much on the immediate source of life. He recognised, however, its general origin in ova, and presumes that this may still be so in even the minutest organism far beyond his vision. "Let physicians therefore cease to wonder at what always excites their astonishment—namely, the manner in which epidemic contagions and pestilential diseases scatter their seeds and are propagated to a distance through the air, or by some 'fomes' producing diseases like themselves in bodies of a different nature and in a hidden fashion silently multiplying themselves by a kind of generation (until they become so fatal), and with the permission of the Deity spread destruction far and wide amongst man and beast; since they will find far greater wonders than these taking place daily in the generation of animals."[10]

He thus clearly recognises the generative elements in minutest nature, and he is not disposed with Hamlet at the same time to admit and to question "if the sun breeds maggots in a dead dog being a God kissing carrion," but frankly recognises the germinative edict of the Creator "as if it were said by the Almighty 'let there be progeny' and straight it is so." "A superior mind and more divine agent than man," he later on observes, "therefore appears to engender and preserve mankind, a higher power than the male bird to produce a young one from the egg ..... to none can these attributes be referred save to The Almighty first cause of all things, by whatever name this has been designated—the Divine Mind by Aristotle; the Soul of the Universe by Plato; the Natura Naturans by others; ..... by ourselves, and as is seeming in these days, the Creator and Father of all that is in heaven and earth, on whom animals depend for their being, and at whose will and pleasure all things are and were engendered."[11]

SOURCE OF CARDIAC ENERGY.

Since Harvey dispelled the views of Hippocrates, Aristotle, and Galen, which prevailed for 2000 years, that the operative force of the heart was in diastole, opinions have alternated as to the source of cardiac energy. Harvey did not discuss the matter, but observing the contractile spot as the motor force of the circulation at the fourth day of the life of the chick *in ovo* assumed it to be an intrinsic rhythmic function of the ventricle. Some observers, with Haller, agreed with Harvey's view that it was intrinsic in the cardiac muscle. Others, with Legallois (1812) and Remak, have regarded it as derived from nervous stimulation either from outside the heart or originating in ganglia first discovered by the latter observer within the heart in 1844, at about the time that the brothers Weber demonstrated the restraining influence of the vagus upon the heart. Gaskell in 1881 again demonstrated this myogenic activity of the heart, and he

[7] Speech by Mr. Austen Chamberlain, Morning Post, July 10th, 1914.
[8] Harveian Oration, 1867, J. Alderson.
[9] The Life of Florence Nightingale, by E. T. Cook, vol. i., p. 442.
[10] The Works of W. Harvey, M.D., by Robert Willis, M.D., p. 322.
[11] Ibid., p. 402.

regarded the ganglia within it as inhibitive. This view was strengthened by the later researches of Engelmann, and it is now generally agreed that the ganglia and nerves of the heart with their corresponding centres are for the purpose of regulating the functions of that organ.

The Rhythmic Function of the Heart.

After careful observation on the hearts of tortoises Harvey concluded that the automatic rhythm of the heart's contraction commences at the venous end, spreading to the auricle and then to the ventricle in a very definite manner. Purkinje, Kölliker, Gaskell, Kent, Tawara, and Keith and Flack, with all the wealth of research at their command, would seem to justify this general view; and they have further shown that there are in the heart centres of neuro-muscular tissue more embryonic in character than the adjacent textures, and which are in continuity with a bundle of fibres, the band of His. This band, dividing above the septum, distributes branches throughout the subendocardium, the fibres of which are identical with those described by Purkinje and minutely examined by Kölliker and terminate mainly in the papillary muscles of the ventricles. Only the elaborate methods and instruments of modern physiology could have elucidated these important points.

It is then evident that the rhythmic function of the heart muscle is a coördinated neuro-muscular force still inherent in the sino-auricular and auricular nodal sarcoplasm and carried onwards by the auriculo-ventricular band; it is a survival of the neuro-sarcoplasmic function of the heart before any extrinsic nervous system existed, exhibited in the first contractile spot of the chick noted by Aristotle and so closely investigated by Harvey; and that the extrinsic nervous mechanism of the heart has been gradually developed as the requirements of the organism have become more complicated. The continuity and incorporation of this more elemental neuro-muscular tissue with the striated fibres of the heart is beautifully shown in some of the illustrations in Tawara's monograph (Plate IV., Figs. 6 and 5). Thus the myogenic and neurogenic views of the heart's action have become, we may hope, finally merged and reconciled.

That the first beat of the heart is really ventricular, as concluded by Harvey from his observations of the chick at the fourth day, is not altogether improbable, although Harvey himself in later observations of the tortoise describes vermicular movement extending from the sinus venosus and completed by the ventricular systole. It is interesting to note in this connexion an observation by Dr. Pavy,[12] which is referred to in the late Professor Rolleston's Harveian Oration (1873), pointing out that in the dog a sudden impulse is given to the auricles by the violent contraction of the ventricles which appears to start their vermicular contraction. It may seem little more than a matter of account whether the heart's action initiates with ventricular systole, the shock of which starts the mechanism of diastolic filling, or whether it is a vermicular action culminating in a powerful systole. A practical interest is, however, given to the question by comparatively recent observations with the electric cardiograph, which show that the auricles are not infrequently put completely out of action, as in the auricular fibrillation described by James Mackenzie and figured in the electrical tracings of Hill, Lewis, and others; and yet the circulation goes on by ventricular action alone, the auricles being converted into mere passive tubes.

Much valuable work from a therapeutical point of view was done in Ludwig's laboratory and by the late Dr. Ringer in discovering the effect of certain saline solutions, especially the chlorides of sodium, calcium, and potassium, in maintaining the irritability of cardiac muscle. A certain mixture of these salts for this purpose is still known as Ringer's saline solution.

The Reaction of Cardiac Muscle.

Amongst the differences in the reaction of cardiac muscle and skeletal muscles to stimulus there is one which is no doubt of some importance, but to which a misleading prominence is given in most text-books of physiology. It is known as the "all or nothing law" of Bowditch. It was found by Bowditch and Ranvier that a portion of muscle detached from the heart of a frog, when electrically stimulated, contracts at once with its full power and that a stronger stimulus will not have any further effect, differing thus from the graduated force of contraction of skeletal muscle according to strength of stimulus, and the conclusion is drawn that if the heart contract at all its contraction is maximal, "for all it is worth."

Even if this observation be trustworthy it will not apply to the living heart under vital conditions of innervation. As pointed out in Howell's "Text-book of Physiology" (p. 573), "numerous observers have called attention to the fact that the vagus fibres may also cause a weakening in the force of the beat as well as a slowing in the rate, or, indeed, the two effects may be obtained separately." In no other organ of the body is there a more manifest reserve of functional power to meet the exigencies of varied conditions of effort, of arterial resistance, of emotion, of sudden or gradual valvular defect or other vicissitudes of life.

It is to be noted that later observations have disclosed another peculiarity of heart muscle unknown to Bowditch at the time of his experiments—namely, that at the time of contraction the heart muscle is "refractory" to further stimulus. It is possible that this fact may vitiate the conclusions drawn from electrical stimulation of heart muscle, and I do not know whether it has been allowed for.

EFFECT OF LUNG ELASTICITY ON THE CIRCULATION.

In addition to the driving power of the ventricles, roughly recognised as equivalent to 6 and 3 inches Hg respectively, there are certain further aids *a tergo* to the circulation which may be briefly enumerated. They are partly sustaining and partly supplementary. The driving power is sustained and carried on with least possible loss (1) by the elastic recoil of the great vessels upon their closed valves; (2) it is said (Lauder Brunton and T. D. Lister) that there is a certain rhythmic or rather peristaltic contraction of the smaller vessels which has some slight effect in propelling the blood through the veins; (3) the larger veins being sheathed with their corresponding arteries are compressed with each arterial systolic expansion, and the blood restrained from back flow by the valves is thus propelled onwards towards the heart; (4) during exercise the contraction of the limb and trunk muscles compresses the venules and larger veins and similarly urges on the venous current; and (5) the compressing effect of abdominal, perineal, and

[12] Medical Times and Gazette, Nov. 21st, 1857, p. 521.

diaphragmatic muscles under various twisting, bending, and straining movements has the same influence upon the great reservoirs of blood in the abdominal veins, the direction of all these forces being determined by valves.

It is a matter for great regret that Harvey's observations on respiration and the greater part of his observations on medicine have been lost through destruction by fire and the malice of a political mob. It is hardly likely that with his extraordinary perceptive powers he could have failed to note and to comment upon the *vis a fronte* aid to the circulation which is derived from the aspiratory traction of the lung elasticity upon the mediastinal space.

Physicians and anatomists before Harvey's time regarded the lungs as a power in the movement of the blood, but they erroneously thought that blood and air were impelled to the heart by the compression of the lungs in the act of expiration. Perhaps even modern physiologists and clinicians have not fully grasped the agency of the elastic traction of the lungs as a constant force of low tension, increased with every inspiratory movement, diminished but not wholly extinguished during expiration, tending always to attract blood through the central veins to the heart cavities, and thus steadily and perpetually aiding the venous return.

The Dynamics of Respiratory Movements.

Up to and at the time of Hutchinson's well-known paper read before the Royal Medical and Chirurgical Society in 1846 the dynamics of respiratory movements were not rightly formulated. Hyde Salter, a Fellow of this College, who first pointed out in 1865 that the elasticity of the ribs was in ordinary breathing a factor in aid of, not against, inspiration, had had his attention especially drawn to the mechanism of respiration by his own sufferings from asthma. This traction of the ribs in aid of inspiration—as I have endeavoured to point out—is throughout the respiratory act never entirely lost in calm breathing, although it tends to become neutralised as the chest enlarges with inspiration. Salter pointed out that in the cadaveric position of expiration there was an outspring of the ribs when released from the traction of the lungs equal to 1/100 inch or 0·25 mm. Some experiments I made in 1876 led me to regard this outspring as equal to from 1·6 to 3 mm. Hutchinson, and later Burdon Sanderson, estimated thoracic expansion in ordinary breathing at about 1·6 mm. Hence practically the thoracic movements in ordinary breathing oscillate within the range of thoracic outspring, leaving this factor constantly on the side of the inspiratory forces. The diaphragm, attached like a bowstring to the elastic margin of the thorax, is similarly held in a state of arched tension by the traction of the lungs.

The result of this elastic mechanism is that the respiratory act in both directions commences with perfect automatic smoothness and imperceptibility. Another effect is to protect the lungs from pressure. There are several other important considerations that arise out of this mechanism in diseased conditions of the respiratory organs. But I am concerned now chiefly with the circulation, and especially as it is affected by these agencies having their root in lung elasticity.

The traction exercised upon the mediastinum and those contents of it which are not in communication with the outer air—the heart, arteries, veins, and lymphatics—is estimated as equal to from 4 mm. in expiration to 7 mm. Hg in inspiration.[13] (It has been stated that this effect is not wholly lost even in the peripheral veins, being appreciable in the small veins by the side of the tendo Achillis.[14]) The positive blood pressure within the great veins as they enter the thorax is well-nigh exhausted, and in the lymphatic currents it is still less, so that this *vis a fronte* equivalent to from 4 to 7 mm. of mercury, being in constant action, is of considerable value in drawing onward the sluggish venous current to refill the auricles and ventricles during diastole.

It is said that at the very commencement of diastole the ventricles have a certain suction power supposed to be due partly to recoil, partly to an erectile effect upon the muscle produced by the influx of blood through the coronary arteries. This aid to the refilling of the ventricles is, however, but momentary and slight and probably does little more than help to open the auricular valves.

Influence on the Heart in Disease.

In health the powerful muscular ventricles during systole can easily disregard any impedient to their contraction caused by the negative pressure in the mediastinum. Such impediment can only be noted by fine instruments as a slight lowering of the blood pressure during inspiration.[15] But in cases of failing heart power, and especially when attended with over-distension of the right cavities, the vacillation of systole with each inspiration becomes so marked that the respirations can be easily counted by the remissions of the pulse force. In extreme cases complete failure of the pulse is observed with each inspiration. This phenomenon must be familiar to physicians. I have pointed it out to students and practitioners for many years as an important and ominous sign of failing heart power. In certain conditions it would be an argument in favour of relieving the venous fulness of the right cavities by bleeding, whilst stimulating heart power by strychnia and oxygen.

We bear witness to the value of this *vis a fronte* force in the use of respiratory exercises as an aid to cardiac action and development in feeble, dilated hearts, especially in children, and for the fatigued hearts of adults. We witness clinically the embarrassment which arises in emphysema from the diminished aid from this force to the circulation. Only in extreme and dangerous fluid effusions and pneumothorax does the pulmonary tension, however, become wholly exhausted and the compression of the lung suggested by Galen and apparently accepted by Harvey operative.

The Right Ventricle.—Arteries after Death.

It may be noted that as the systolic work of the right ventricle is distributed within the thorax the pulmonary arterial pressure is not affected by the respiratory mechanism under consideration (except when possibly some fluctuations occur in the capacity of the pulmonary capillaries). The diastolic supply to the right ventricle is, however, greatly aided by aspiration through the great veins.

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[13] Howell's Text-book of Physiology, p. 649. Professor Starling places it at 10 mm. Hg during expiration and even 30 mm. Hg on forcible inspiration.

[14] System of Medicine, Allbutt and Rolleston, vol. vi., Thrombosis, by W. H. Welch, M.D., p. 717.

[15] It must be here remarked that Professor Starling considers that the blood pressure is increased at least during the latter two-thirds of inspiration. He illustrates this view in a diagram, but I am not clear that the diagram represents an actual measurement and venture to think on the clinical grounds above stated that this view needs further verification. The view adapted in the text is upheld by Leonard Hill. (The Vascular System and Blood Pressure: Further Advances in Physiology, 1909, p. 145.)

Although Harvey pointed out the fallacious inferences drawn by the old anatomists from the supposed occupation of the arteries by air during life he never seems to have denied that the arteries were so occupied after death or realised that only with the first division of an artery by the anatomist's knife is air admitted to them. It is possible that the extreme expiratory contraction of the chest so constantly observed at death is connected with the emptying and collapse of the great intrathoracic arteries and the attempt to restore atmospheric equilibrium. And it is in this connexion interesting to observe that after death the great vessels, when occupied at all by ante-mortem clot, are so occupied by a clot much smaller than their calibre.

INSTRUMENTAL METHODS.

It may be said that the great advances in knowledge respecting the circulation since Harvey's time have been made through the aid of instrumental methods. When the pocket lens of Harvey was replaced by the primitive microscope of Malpighi the capillary link of the circulation which could only generally be assumed by Harvey was demonstrated.

The systemic blood pressure was first roughly but very accurately estimated by the Rev. Stephen Hales (1773), and by simple experiments he also demonstrated contraction and relaxation of the vessels as influencing the output or blood pressure—no small feat in a man of his time and with but little medical training. Next to the general blood pressure the recognition of its local distribution according to the requirements of the different organs was an epoch-making event in the history of discovery, which was inaugurated by the memorable experiments of Claude Bernard upon the chorda tympani nerve in 1851.

The Local Distribution of the Blood.

The fact of such varied distribution to organs and tissues under conditions of emotional and functional stimuli had not altogether escaped Harvey. He commented upon the pallor or flushing of the face under the emotions of self-consciousness, fear, anger, or shame, and he observed that the ears might be red when the face was pale; he was, moreover, aware of some connexion of the nervous system with the local disturbances of circulation caused by irritation. He comments upon the fact in association with stomach and other abdominal irritations, and in his remarks upon the effect in his own person of a poisoned needle puncture clearly shows his appreciation of this agency. Having pricked his hand at one point with a clean needle and at another with one envenomed with spider poison, he remarks: "I could not by my simple sensation perceive any difference between the two punctures; nevertheless, there was a capacity in the skin to distinguish the one from the other; for the part pricked with the envenomed needle immediately contracted into a tubercle, and by-and-by became red and hot and inflamed, *as if it collected and girded itself up for a contest with the poison for its overthrow.*"[16] The careful observations upon Alexis St. Martin perhaps first demonstrated the accession of blood to organs in activity. The importance of nervous control in regulating general blood pressure was more fully recognised by the discovery by Ludwig in 1866 of the depressor nerve as an afferent nerve of the heart which, when stimulated, as by excessive blood pressure within the heart and aorta, caused through the medium of the splanchnic nerve a dilatation of the abdominal arterioles with instant release of intracardiac pressure.

It would take more than one address to illustrate in detail the many results and conditions of flushing and restriction of circulation through the different organs and tissues as required for their individual functions. We now fully recognise how efficiently the blood is held in the grasp of the arterial system, to be distributed here or there in accordance with local needs telegraphed to the nerve centres from the several organs; and our knowledge of the details of this control with regard to individual organs is ever increasing, in witness of which I might quote Dr. Markwalder's and Professor Starling's recent researches showing how the coronary circulation of the heart itself is thus regulated by some local mechanism in accordance with the demands upon its functional capacity.[17] These observers find that the coronary circulation is intimately dependent on the general arterial pressure; that adrenalin causes dilatation of the coronaries, as it raises arterial pressure; that increase of CO_2 in the blood also causes coronary dilatation; and that non-volatile metabolites produced by the heart muscle are potent agents in causing a similar dilatation.

The presence of the same neuro-vascular mechanism in the lungs and brain has long been conjectured by physicians as necessary to explain certain symptoms—apnœic, aphasic, convulsive—which are familiar in practice. Such mechanism has been long and even recently denied, but has been demonstrated to exist by the successive observations of Sir John Rose Bradford, Dr. Bokenham, Sir Lauder Brunton, Roy and Sherrington, Brodie and some others, and affirmed by Sir David Ferrier in his Harveian Oration (1902).

The Use of Instrumental Methods.

Up to recent times instrumental methods were mainly restricted to the laboratory and utilised for experimental researches upon animals. They are now largely employed in the clinical investigation of health and disease. The systematic examination of the urine for albumin and sugar, and still more the quantitative estimation of these substances and of urea, with microscopic examination of urinary and sputum deposits as clinical tests, are well within the time of many of us. The observations of Wunderlich, Ringer, and numerous others with the clinical thermometer have rendered exact the more crude recognition of the older physicians that the body temperature, so wondrously constant under all conditions and vicissitudes in health, is readily disturbed in definite ways by blood ferments and altered tissue metabolism in disease. It must be confessed that these instrumental aids have not always at first been received with the cordiality they deserved by clinical physicians. I can remember one of the pioneers of the clinical thermometer being somewhat petulantly snubbed by a very distinguished physician of that time on producing in a post-mortem room the temperature records characteristic of a case of tuberculosis.

Diseases of the circulatory system have been especially favoured by this combination of laboratory and clinical methods. Observations on the pulse—old as the history of medicine—have been

[16] The Works of Harvey, by Robert Willis, M.D., On Generation, p. 431, Sydenham Society, 1847.

[17] Journal of Physiology, vol. xlvii., Nos. 4 and 5. THE LANCET, Feb. 14th, 1914, p. 469.

supplemented by the refined methods of the sphygmograph. Again, such instruments as the capillary pressure gauge, the radiographic apparatus, the combined veno- and cardiograph and the electric cardiograph have given us, in association with the stethoscope, a comprehension of the cardiac mechanism and its perversions in disease which is almost complete. Greatly as we are indebted to laboratory investigation for exact knowledge and clinical insight, we must not forget how much has been and is being learned and suggested respecting vital processes by the older and less exact methods of clinical observation. Need I point to the laborious and minute clinical observations by Harvey himself, and his innumerable necropsies and dissections.

The Coördinating Control of Clinical Observation.

Whilst fully recognising and rejoicing in the value of instrumental aids we must be careful, then, not to weaken by disuse the coördinating control of clinical observation. The more deeply we study the human mechanism—and where shall we find a more profound lesson than may be drawn from the circulation and properties of the blood—the more we shall be convinced of the complete interrelation of its parts as they have become evolved from one comprehensive bioplasm. Instrumental methods deepen insight and observation at the bedside, whilst ever remaining in reserve for the more thorough investigation of individual cases of obscurity. Unless thus employed, however, in due perspective with the whole clinical phenomena of disease, any one method must prove full of the fallacies inherent in all isolated methods. I would urge, then, a steady maintenance in full efficiency of general clinical observation in correlation with all necessary laboratory and instrumental methods as essential to our right interpretation of disease; for it cannot be doubted that a want of coördination and perspective in the use of the two methods breeds bad physicians and tends to reckless and sometimes harmful treatment. In my humble opinion, Sir, and in this I agree with some previous orators, no institution of lectures has been more valuable to the profession and more in accordance with the spirit of Harvey than those founded by our distinguished Fellow, Dr. Oliver, in memory of the revered teacher of still some of us, Professor Sharpey. Clinical observation and teaching have been encouraged and the dignity of medicine enhanced by the able men who have given these lectures in successive years since 1904. We should never forget that the great physiologist and anatomist and Fellow of this College, whom we commemorate so proudly to-day, was also a great physician and an acute and laborious clinical observer.

(To be concluded.)

BELFAST MEDICAL SCHOOL.—The work of the present winter session of the Medical School, Belfast, began at the University on Oct. 13th, when lectures were resumed, and at the Royal Victoria Hospital on Oct. 16th Dr. V. Fielden, the anæsthetist, gave an opening address to the students on "Suggestion or Psychotherapy," discussing the various views held in reference to that method of treatment. Senators, members of the teaching staff, graduates and undergraduates of the Queen's University were present at a great meeting held in the examination hall of the University on Oct. 21st, "To consider the call of duty in the present national exigency"

SHELL WOUNDS IN MODERN NAVAL WARFARE.[1]

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As up to the time of writing most of the wounded from naval engagements have been landed at the Royal Naval Sick Quarters at Shotley we have thought that a brief account of modern shell wounds with a description of the adopted line of treatment might be of interest.

At the sinking of the *Königin Louise* the guns were 4-inch; shells common or lyddite. These shells are made of forged or cast steel with thin sides. The common shells are filled with gunpowder, while lyddite shells are filled with lyddite, which has picric acid as its chief constituent. In the Heligoland action the same were used with the addition of 6-inch and 12-pounder shells. The shells used by the Germans are probably made of forged or cast steel and filled with tri-nitro-toluene. This T.N.T. is nitrated toluene (C_7H_5) and is similar to lyddite.

The wounded received were the survivors from the *Königin Louise* on August 5th and those who were hurt in the action off Heligoland on August 26th. In the case of the former engagement some were admitted within 16 hours of receiving their wounds, but in some cases it was not until 36 hours had elapsed that it was possible to land them and admit them into hospital. All these patients, many of them badly wounded and suffering from compound fractures and other serious injuries, had been in the water for varying periods and had been rescued by whalers lowered from the attacking ships and subsequently transferred to one of the destroyers. Here they received such first aid as could be given them. These cases formed the first batch of wounded received; the remainder were taken on board the *Amphion* within a short time of receiving their wounds, but on the next day, after she struck a mine, they had to be transferred to a destroyer. In the action off Heligoland the wounded for the most part were transferred from their own ships to the *Fearless* for transport to hospital, and were received in from 24 to 30 hours after the action. Some had been in the water and some had been transferred from the destroyers to the bigger ship. In these actions destroyers and light cruisers were for the most part engaged. In the destroyers first-aid measures alone can be adopted, and even in light cruisers any radical surgery is performed with much difficulty owing to the excessive vibration when the ship is travelling at any speed. We mention these details to show the disabilities which the wounded in action have to put up with at the outset and just during the time that rest and methods for combating shock are most necessary. Accounts of military warfare in South Africa state that some of the patients probably owed their lives to the fact that they were left lying, after the application of a first-aid dressing, where they fell

[1] Published by permission of the Medical Director-General of the Navy.

and were not immediately removed to the field hospital. In a naval action, however, this does not obtain, and it is frequently necessary to remove the wounded to a larger ship carrying a medical officer. Everyone knows the difficulty of getting into a small boat; add to this the possibility that a big sea is running and that the patient suffers from a badly shattered lower limb—it will be seen then that the patient's chances may be seriously handicapped by such necessary removal.

Before closing these brief general remarks we would point out the importance of early medical attention. All cases received first aid in some form or another; those patients received from the destroyers had had their wounds dressed and temporary splints applied. This first aid had been most efficiently carried out by those responsible, but the advantage of more skilled attention from a surgeon, had it been procurable, was plainly shown in one case—namely, that of a man with a badly shattered foot necessitating amputation later. In addition this patient had a deep wound of the muscles of the thigh; evidently there had been free hæmorrhage, for a tourniquet had been applied over the femoral artery, and at the time of admission of the patient this had been on for 36 hours. We mention this in no carping spirit, for the wounded owe a great deal in the way of comfort to the first aid they received. It is a further instance of the trials which they have to undergo. Those who had wounds which received early attention had less suppuration than had those in which it was given later. This was notably the case in those received from the *Fearless* after the engagement off Heligoland.

The Wound Caused by the Shell.

The shell on exploding bursts into pieces of varying size; the larger pieces probably cause more or less instant death. The wounds coming under observation were caused by pieces the largest of which measured about 3 inches by 1 inch. Probably the most severely wounded sank in the water. Wounds from shell come conveniently under the following headings:—

1. *No entrance or exit wound.*—Complete loss of superficial tissue.

2. *Wounds of entrance and exit.*—(*a*) When superficial, involving soft tissues, both wounds may be quite small or exit wound large. (*b*) When involving bone, comminution, and exit track contains fragments; exit wound large, ragged, and funnel-shaped.

3. *Entrance wound only.*—Metal found; if flat, wound is subcutaneous; if bullet-shaped, impacted against bone with fracture or embedded in deep tissues.

The above classification at the best is somewhat arbitrary and cannot include all cases.

Punctured wounds are common and may be caused by splinters. The large wound is generally lacerated, with contused margins. Much of the skin and superficial parts may be missing altogether. The surrounding skin and deeper parts may be seared and burnt. Many cases showed wounds of entrance and exit; some, wounds of entrance only. The shape of a piece of shell had some effect on the depth of the wound. If flat, the wound tended to be subcutaneous; if conical, it was likely to be deeply embedded. In the former class of wound we can call to mind two cases, both wounds of the back caused by large pieces of shell. From the entrance wound a long subcutaneous track ran, and at the bottom of this the piece of shell was found. In one of these cases a small external wound lay just over the shell, giving one the impression that the skin had split over the foreign body. The state of these wounds could easily be accounted for by the extremely sharp and irregular edges of the shell fragment.

Contents of Wound.

Shell may or may not be found. In most cases fragments of serge clothing were also present, and more rarely pieces of linen. In the *Königin Louise's* wounded, many of whom were wearing life-belts, numerous fragments of cork were found together with splinters of wood. When the bone was injured fragments of bone were usually found.

Effects on Special Structures.

(*a*) *Bone.*—For the most part bone is much comminuted and splintered; the fragments may be driven widely among the softer parts and through the exit wound and skin. In two cases—both compound fractures of the femur—there was an oblique fracture with little or no comminution. Whilst on the subject of fractures, one point in the examination of the wound seems worthy of mention—namely, the difficulty of deciding on probing as to whether metal or bone is felt. The old idea of a "ringing sound" appears somewhat fallacious. Possibly the shell is surrounded by fragments of clothing. The use of the finger is much more reliable.

(*b*) *Soft structures.*—Muscles, fasciæ, nerves, and blood-vessels may all be lacerated. Where muscle was affected there was a good deal of superficial necrosis. The condition of the main blood-vessels is of primary importance in deciding as to the necessity for amputation.

(*c*) *Special organs.*—Some cases brought in dead had abdominal injuries. Only one abdominal case came under treatment. This was a case of injury to the kidney which completely recovered. There was one case of depressed fracture of the frontal bone with subsequent subdural abscess caused by a very small splinter. Another case was one of spinal concussion with retention, and, later, incontinence of urine. In this case there was great comminution of the spinous processes and laminæ of the upper lumbar vertebræ, but no evidence of spinal compression. One case of surgical emphysema due to a wound of the apex of the right lung was admitted.

Shock.

In varying degrees this was present in almost all. Contributory causes were nervous excitement, loss of sleep, loss of blood, and the fact that many had been thrown into the water and subsequently rescued.

Hæmorrhage.

Primary.—Owing to the time that had elapsed since the engagements we saw none. Cases were brought in dead where large vessels, such as the femoral, had been severed.

Reactionary.—No cases of this were seen, as most of the patients were still suffering from shock with feeble heart beat.

Secondary.—During the time of the separation of the sloughs it occurred in varying stages, from a general oozing from the wound to bleeding from vessels the size of the thoracic axis and suprascapular arteries and the external saphenous vein. In one case a large abscess cavity was opened up and the bleeding vessel was found running through this with definite ulceration of the vessel wall.

Suppuration.

This occurred in practically every case. The skin, especially of the hands and feet, is grimed with dirt, oil, and coal dust, and stained with the fumes of cordite. Severe laceration of the parts, the entrance of shell, pieces of clothing, and other foreign bodies are contributory factors. As regards clothing, wounds into which serge entered invariably suppurated. In the case of linen the wounds were distinctly cleaner. In some cases shell was only found after the lapse of some weeks, the discovery being due to the formation of an abscess in a place some distance from the original wound. In one case in which the entrance wound was on the outer side of the thigh a hæmatoma developed below the gluteal fold and suppurated some six weeks later. This was opened and a large piece of shell and serge clothing were found in the neighbourhood of the tuber ischii about eight inches from the original wound.

Treatment.

Immediately on arrival a rapid survey of each patient was made. Later a more detailed examination took place and a line of treatment decided on. Cases with severe shock were treated on the usual lines, and no active surgical interference was carried out until signs of primary shock had disappeared. Those requiring immediate operation were found to be a comparatively small percentage. Conservatism in treatment has been the main principle. Even very severe lacerations of limbs were not treated by immediate amputation if the blood-supply was good. As long as the patient was not going down-hill from the condition of his wounds local treatment was persisted in. As an illustration we may instance the case of one who in addition to other serious wounds had a good half of the sole of his foot blown away. On admission what remained was covered by a gangrenous slough. This separated and exposed the metatarsals. However, the wound took on a healthy appearance, and when he left us showed signs of ultimately healing.

Primary examination was made by the X rays. Often, although splinters of shell could be seen, some difficulty was experienced in finding them at the time of operation, especially when embedded in the deeper muscles. Generally the patient was anæsthetised, the wound cleaned, foreign bodies removed, and the wound swabbed with iodine. Suturing of torn muscles and as far as possible approximation of the edges of skin were carried out with the idea of making the wound small. Drainage was generally necessary. In the case of fractures loose fragments were removed; those still attached to periosteum were left, being replaced in position. No attempt at operations such as wiring was carried out in view of the almost inevitable suppuration. Limbs were immobilised in splints, but the subsequent dressing of suppurating wounds greatly handicapped the union of these fractures. For these wounds we found peroxide of hydrogen to be our sheet anchor. It was used in 10 or 20 volumes solution, and was of the utmost value. The usual dressings were sterilised gauze and occasionally fomentations.

Vaccine treatment.—A series of cases were treated with the antisepsis vaccine of Parke, Davis, and Co. in the following doses of ten-fold diluted vaccine—daily doses of 3, 4, 5, 8, 10, 15 minims and 1 c.c.; then injection of 2 minims of undiluted vaccine every three days. (1 c.c. of undiluted vaccine contains 25,000,000 streptococci and 500,000,000 staphylococci.) The cases thus treated showed distinct improvement in lowering of temperature and separation of sloughs more rapidly than in cases not so treated. In cases not under treatment with the vaccine a septic type of temperature continued for from 2 to 3 weeks. It was found in many cases impossible to remove the disintegrated serge except by slight scraping and syringing of the sinuses. Vigorous scraping and probing are contra-indicated owing to the danger of causing suppuration in fresh planes. The removal of such débris caused rapid cessation of foul discharge and consequent fall in temperature.

Conclusion.

Owing to local conditions we have been unable to see many of our cases through to the end. For the most part on leaving us the wounds were healthy and only required skin-grafting for their complete cure. It may be that further surgical measures may be necessary for some cases of non-union of fractures. The gap which contained comminuted fragments still attached to periosteum was often one or two inches in length, so that early union of those fractures cannot be anticipated.

Notes of Cases.

Appended are notes on a few typical cases.

CASE 1.—Lacerated and contused wound over clavicle; middle third of clavicle comminuted and much displaced. Punctured wounds over right carotid sheath and in right forearm. Fragments of clothing removed from clavicular wound and shell from forearm. Surgical emphysema over lower neck and upper chest for two or three days after admission due to wound of lung, the apex of which could be seen exposed at the bottom of the wound. Some suppuration; healing well.

CASE 2.—Admitted with big lacerated wound involving quadriceps muscles of the thigh on anterior and outer aspect. Also a wound 4 inches by 3 inches, with complete destruction of soft parts of sole of left foot down to flexor tendons. Above left ankle two large wounds with compound comminuted fracture of the lower third of the fibula. The right little toe had been shot away at the metatarso-phalangeal joint. Many fragments of clothing, cork, and bone were removed; much sloughing of tendons and muscles with very offensive pus. On leaving hospital wounds much smaller, granulating well, and healing. Secondary hæmorrhage from the peroneal artery in wound above ankle; this was controlled by plugging and pressure.

CASE 3.—Compound fracture of right radius and ulna—a large gaping wound with great laceration was present on the upper postero-external surface of forearm and showing complete comminution of the upper two inches of the ulna; radius fractured at the neck. The muscles were much lacerated, but the main arteries were intact. There were also three small incised wounds over the left frontal region of the skull—at the bottom of one there was a slightly depressed star fracture of the left frontal bone. The elbow wound became very septic, necessitating continuous arm baths, and eventually as the patient became semi-comatose amputation in the upper third of the arm was performed and the skull was trephined at the same time. The left frontal lobe was much lacerated by a piece of bone driven in, and the hæmatoma thus formed had begun to suppurate, giving rise to a subdural abscess with secondary cerebral œdema. Owing to the latter a cerebral hernia formed and drainage became difficult. The patient eventually died a fortnight later.

CASE 4.—Admitted with a lacerated wound 7 inches long from the right supra-malar region through the lobe of the ear, ending in a deep cavity in the right supra-scapular region. The incision severed the parotid gland and branches of the seventh nerve. A large flat piece of shell was removed from the cavity. There were numerous punctured wounds of the right chest, forearm, and hand; fracture of the bases of the second and third metacarpals had been caused through a punctured wound of the hand.

The incised wound was sewn up and a counter opening made for drainage of the cavity in the suprascapular region. Suppuration followed in places, but the final result was good.

CASE 5.—Incised wound 4 inches long across right cheek; smaller wound of right ear. Punctured wounds in front of right shoulder extending to axilla, and behind left shoulder extending to suprascapular fossa. Numerous superficial "splash" shell wounds over both arms, chest, abdomen, and legs. Compound comminuted fracture of proximal phalanx of left second toe. Many small angular pieces of shell were removed from the various wounds. Secondary hæmorrhage occurred about 12 days later from the suprascapular wound which was opened up; an ulcer was found in the wall of the suprascapular artery, giving rise to free hæmorrhage. The artery was tied and the patient rapidly recovered.

CASE 6.—Shell wound in right lumbar region, 2 inches by ¼ inch. A probe passed upwards and inwards for 1½ inches. Hæmaturia followed and lasted for 14 days. Shell could not be seen by X rays. Recovery.

CASE 7.—Oblique fracture of right femur in lower third; compound from a small punctured wound. Another punctured wound in the upper third of the thigh. Extension and Liston's splint used. Six weeks later a hæmatoma was noticed on posterior aspect of thigh; this was opened and found to be suppurating in its deeper part and a large piece of shell with serge clothing removed. Union incomplete on leaving hospital.

CASE 8.—Numerous punctured superficial wounds of scalp, face, arms, abdomen, and back. Deep punctured wound left great trochanter and left great toe, both containing shell. A large lacerated wound was found over upper lumbar vertebræ; this was opened up, and great comminution of the spinous processes and laminæ of the upper three lumbar vertebræ was found. Loose pieces of bone were removed and free drainage given; the spinal dura mater had not been punctured and no symptoms of pressure on the cord were present. Temporary retention of urine, followed by slight incontinence, rapidly disappeared.

CASE 9.—Incised wound 4 inches long on left side of chest exposing costal cartilages; also large superficial shell burn on right chest and incised wound of forehead. The incised wounds were cleaned and sewn up. Compound comminuted fracture of right tibia with large anterior lacerated wound; the tibia was broken into small fragments for 2 inches and the muscles of the anterior group were much lacerated. Loose fragments were removed and the wound cleaned up and partly sewn; progressing well, although still some sloughing of superficial muscles and fasciæ.

Royal Naval Sick Quarters, Shotley.

PYLORIC OBSTRUCTION IN INFANTS.

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AN apology is hardly needed for describing a series of cases of pyloric obstruction in infants. Although many cases have been described in late years by clinicians of experience there is as yet no settled plan of treatment. Further, certain clinicians whose views on the subject seemed to be established now show signs of modifying their views and even of changing them entirely. It is evident, then, that the subject has not yet ceased to be a suitable one for discussion and exchange of opinions. I do not propose to discuss the pathology and etiology of this condition but merely to describe briefly a series of cases in the hope that the description will justify certain inferences and add to our general knowledge of the subject.

It is said that the condition is more common in males, that the symptoms commonly begin in the second month, and that it is characterised by forcible vomiting, visible gastric peristalsis, wasting, constipation, and the presence of a palpable pyloric tumour. With regard to the last sign I am rather sceptical. I have felt a hard cylindrical tumour in certain cases, especially during gastric peristalsis. But it is impossible to palpate deeply in many cases, and in some cases of wasting with a lax abdominal wall I have felt a similar tumour. I regard the palpability of the pylorus rather as a sign of wasting than of pyloric hypertrophy.

CASE 1.—The patient was a female, aged 18 weeks. There were present vomiting, wasting, constipation for four weeks, and peristalsis was seen occasionally. The patient was treated by gastric lavage twice a day and later on alternate days. She lost weight for two weeks and then improved in all ways, gaining 7 oz. in 24 days. All was going well when the child, who came of an epileptic stock, had a series of fits and died in three hours.

At the post-mortem examination the capacity of the stomach was found to be enlarged. The stomach wall was hypertrophied and the pyloric aperture was narrowed so that nothing larger than a probe could be passed easily. Mucous membrane in linear folds. Muscle of pylorus greatly thickened so as to form a hard resistant ring occluding the pylorus.

In the above case the age of this patient was a remarkable feature. Another point of interest was that although the pylorus was almost occluded post mortem it had been possible for the patient to put on weight.

CASE 2.—A male, aged 4 weeks. Vomiting, wasting; constipation coming on gradually for 10 days; visible peristalsis. Treated by gastric lavage and pancreatised milk. Gained 3 oz. in four days. Then diarrhœa set in and the patient became collapsed and died rapidly.

The post-mortem examination revealed hypertrophy of the pyloric muscle, causing narrowing of the lumen.

CASE 3.—A female, aged 9 months. Sudden illness with vomiting. Brought to hospital next day in a collapsed state. Very violent gastric peristalsis visible. Death in a few hours.

Post mortem a hard piece of meat was found plugging up the pylorus.

This case is quoted to show that visible gastric peristalsis can occur very soon after the pylorus is obstructed.

CASE 4.—A male, aged 8 weeks. Had been ailing for three weeks with obstinate vomiting. He had improved and had gained weight for a time under small doses of tincture of opium and feeding with dry feeds of virol. The stomach had not been washed out. The patient began to "go down hill" and vomiting set in again. He was treated with gastric lavage and pancreatised milk. He improved for 24 hours as regarded vomiting, but it became worse again, causing sudden collapse and death two days after he was first seen.

CASE 5.—A male, aged 5 weeks. Vomiting, constipation, wasting, peristalsis. Treated with lavage and pancreatised milk. Improved steadily from the start. In two weeks increasing feeds of citrated milk were used to substitute pancreatised milk. Though visible peristalsis continued the improvement was maintained and the patient left the hospital in seven weeks. When seen some months later he was in good health.

CASE 6.—A female, aged 10 weeks. Similar condition to Case 5. In hospital seven weeks. Treatment and progress similar to Case 5. When seen later was in good health.

CASE 7.—A female, aged 14 weeks. Wasting, forcible vomiting, constipation, very violent peristalsis. Treated by gastric lavage and pancreatised milk to which albulactin was added later. Lost weight for the first four weeks and then gained steadily. The weights in October were 7 lb. 7 oz., 6 lb. 14 oz., 7 lb. 1 oz., and 7 lb. 2 oz.; in November 7 lb. 1 oz., 7 lb. 3 oz., 7 lb. 7 oz., and 7 lb. 13 oz.; in December 8 lb. 1 oz., 8 lb. 4 oz., 8 lb. 8 oz., and 8 lb. 14 oz.; in January 9 lb. 10 oz., 10 lb. 4 oz., and 11 lb. 6 oz. Lavage was gradually omitted; citrated milk feeds were gradually used to replace pancreatised milk. When seen at the age of 2 years the patient was a healthy, strong, well-developed child, never having any gastric trouble.

CASE 8.—A male, aged 11 weeks. Very violent peristalsis in which three distinct waves could be seen; forcible

vomiting, wasting, constipation. Treatment similar to Case 7. Progress slow at first, and then rapid gain in weight. In hospital 11 weeks. The patient was in good health when seen six months later.

CASE 9.—A female, aged 6 weeks. Wasting, constipation, forcible vomiting; peristalsis occasionally seen. Treatment on the usual lines. Progress was at first in the wrong direction, 1 lb. in weight being lost in the first month. After the first month there was a steady gain in weight. Weights: July, 8 lb. 8 oz.; August, 7 lb. 9 oz.; September, 8 lb. 7 oz.; October, 8 lb. 13 oz.; November, 10 lb. 1 oz.; December, 11 lb. 1 oz.; January, 12 lb. 5 oz.; February, 14 lb. 10 oz. Reported two years later to be in good health.

CASE 10.—A female, aged 16 days. Still under observation at the age of 5 months. This patient has been the most troublesome of all. Her weight on admission was 5 lb., and at the age of 5 months 8 lb. 5 oz. For five weeks weight was gradually lost until the condition seemed desperate. Then an ounce was gained and a gradual gain took place with periods of slight loss or stationary weight. The child is now in a satisfactory condition and is developing steadily.

This patient is the youngest of the series. At first peristalsis was seen occasionally; it is still seen after feeding.

In examining the above series it will be seen that one case (Case 3) is not a case of pyloric stenosis but of obstruction of the pylorus by a foreign body.

Of the remaining nine cases the following points may be noted:—

Sex.—There are 5 females and 4 males.

Age.—The males are younger than the females, except in one instance. The earliest age was in a female, 16 days; the greatest age was in a female, 18 weeks; but the average age is younger in the male.

Result.—Of the 3 fatal cases, 2 were males and 1 female. One patient died from fits, another from diarrhœa, and a third was in a very bad way and died within 48 hours of first being seen. Of the 6 who recovered 5 have become perfectly normal children and have been kept under observation since. In some cases recovery was straightforward and rapid; in others the struggle for improvement was desperate, and only after many vicissitudes did the patient come out of it alive. The remaining one is Case 10, who is still under observation.

Physical signs.—1. Vomiting. This is one of the most characteristic features of the condition. It is sudden and forceful. The stomach contents are shot a long way, sometimes even out of the cot. 2. Wasting and constipation require no comment. 3. Peristalsis is a variable sign. It is sometimes very definite as in Cases 7 and 8. In other cases —e.g., Cases 1 and 9—it is only seen occasionally. In Case 1 there is no doubt about the pyloric stenosis as there was a post-mortem examination. It is perhaps unjustifiable to draw conclusions from a limited number of cases; but in these few cases it was noteworthy that if peristalsis was violent the treatment was much easier and progress steadier. In the cases in which peristalsis was not an outstanding feature the treatment was much more troublesome and the progress more uncertain. Case 3 proves that visible peristalsis may occur without there being any hypertrophy of the stomach. Peristalsis should be regarded as a sign of obstruction rather than of hypertrophy. Peristalsis of the stomach is frequently seen in young babies who have vomiting, colic, and constipation. I have records of many such cases seen in out-patients and treated satisfactorily by castor oil and eliminating milk curd from the diet for a few days. These cases may be regarded as instances of "pyloric spasm." Possibly if they were untreated a hypertrophic stenosis might follow. Who knows? 4. I have already expressed my opinion on the palpable pyloric tumours.

Treatment.—The medical treatment of these cases requires the greatest care and skill on the part of the nurse. I wish to record my great indebtedness to Sister Louise, of the Victoria Hospital, to whose devotion the six successfully treated patients owe their lives. Of those who died, Case 2 died when she was on her holiday, Cases 3 and 4 were not under her care, and Case 1 died from fits while gaining weight satisfactorily; so that Sister Louise can claim that she has had 6 cases, all successful. The medical treatment consists in (1) keeping the patient warm; (2) washing out the stomach; and (3) feeding with predigested milk.

1. Keeping the patient warm seems easy, but with a very minute infant it is not so easy as it seems. I have found that the most satisfactory way is to put the baby, all but the head, in a hot-air bath that can easily be rigged up in an ordinary cot. A fracture cradle is taken and draped with pieces of blanket. Inside it are hung an electric lamp and a thermometer. The air inside the cradle is thus warmed and kept warm.

2. Washing out the stomach requires little description. It can be done with the baby sitting up on the nurse's knee or lying down on one side. It may have to be done several times a day, but usually twice a day is often enough. After a week once a day is enough as a rule. My practice is to use warm tap-water, which is a moderately good solvent of mucus. Occasionally I use a solution of bicarbonate of soda or citrate of potash. I have given up the constant use of these solutions as a routine method, as I have found in several cases that, after a few days, there was a tendency to diarrhœa. If the child is too feeble to stand regular washings out warm water can be given to drink. A vomit will probably follow which may bring up some mucus.

3. Predigested milk will be for a long time the sole diet. I prefer liquor pancreaticus to other preparations for the purpose of digesting milk. The milk should at first be given a teaspoonful at a time every half hour. When this amount is tolerated the interval and quantity may be increased. When the patient is beginning to thrive I have found virol and albulactin useful as additional foods.

Drugs are occasionally useful. When there are much colicky writhing and abdominal tenderness I give tinct. opii ♏ ½ or chlorodyne ♏ i. three times a day for two or three days. I have tried belladonna, but found it useless in this disease. The bowels have to be kept open. An occasional dose of castor oil followed by grey powder will often be sufficient. Petroleum emulsion is also useful. Phenolphthalein is perhaps the most satisfactory drug to use regularly.

The most vital question of all remains: Is this condition to be treated by the physician or the surgeon? Doubtless there is much to be said on both sides, but all will agree that the disease is one of the most "tricky" that we know and is of a very "special" character. Whether we advocate medicine or surgery, it will be admitted that much depends on who the physician is, more on who the surgeon is, and still more on who the nurse is. If surgical treatment is employed it does not mean that it is a substitute for medical treatment. The after-treatment of the infant who has been operated on is just as "ticklish" as the medical

treatment throughout. At best surgical treatment shortens the duration of the illness, and as time is valuable there is much to be said for operation. On the other hand, risks are great in surgical treatment and results vary in a most startling fashion with different surgeons. I trust that I may say without giving offence that there are comparatively few surgeons in whose hands operative treatment is not attended by very grave risks. Personally, I am trying to keep an open mind with regard to treatment and am endeavouring to find some definite indication which will direct the line of treatment.

In some of the cases in this series the patients have been sent to me by surgeons as they were too ill to stand an operation. In some the condition seemed desperate, but they eventually recovered. I think then that in the very bad cases medical treatment only can be recommended. When such patients begin to improve and are strong enough to stand an operation a surgeon might give his opinion once more. But it seems too like tempting providence to interfere with a treatment that is satisfactory. If the condition remains stationary for long or begins to decline after an initial improvement a surgeon should certainly be called in. If a child is seen in the early days of the disease and the diagnosis is definite I should recommend surgical treatment provided that the child has plenty of strength. But unfortunately such children do not come under observation in the early days, a remark especially true of hospital practice.

In conclusion, I would summarise thus: 1. Some cases can only be treated by the physician. 2. Some cases would be better treated by the surgeon; but whether they are or not, medical treatment will be necessary. 3. Whether the treatment is medical or surgical, neither will be effective without the care of a specially skilled nurse.

Queen Anne-street, W.

PROGNOSIS IN CANCER OF THE TONGUE.

BY WILFRED TROTTER, M.S. LOND., F.R.C.S. ENG.,
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I. *Prognosis as to Cure.*

ONE of the greatest embarrassments of the surgeon in dealing with cancer of the tongue is the difficulty of making reasonably sure in any given case as to whether a satisfactory result of treatment is or is not to be expected. It commonly happens that in a case which the surgeon is inclined to regard as favourable the tumour proves to be desperately malignant and recurs after an extensive excision, and it occasionally happens, though unfortunately less often, that a very serious looking case proves to be unexpectedly favourable. Mistakes in prognosis of the most painful kind are thus, if the surgeon is betrayed into giving an opinion, extremely likely to occur. Moreover, this capriciousness in the behaviour of cancer of the tongue is apt to discourage systematic and thorough methods of operation, for the surgeon is tempted to believe at times that his most careful extirpations are as likely to be followed by recurrence as the less scientific procedures of an earlier time. Most surgeons of any considerable experience in the disease must, for example, occasionally have had to do with a patient who, after the primary growth has been successfully removed, has refused to submit to the gland dissection in spite of all warnings, and yet has remained permanently free from further trouble. Such experiences cannot fail to be disturbing, especially if one remembers at the same time the cases in which extensive gland operations have totally failed in their purpose.

Not only, however, are the results of clinical work inconsistent with one another, but they are also, at any rate ostensibly, irreconcilable with pathological findings. It has been conclusively shown by Cheatle in his histological studies that in many cases of cancer of the tongue, not necessarily of an advanced type, cancer cells can be demonstrated throughout the tongue muscles as far as their origin from the hyoid bone. And yet it has been demonstrated equally conclusively in actual practice that many operations which fall far short of removing the tongue muscles down to the hyoid are perfectly satisfactory in preventing local recurrence. It is true that in some such cases no doubt a true local recurrence in the muscles close to the hyoid bone has been mistaken for a glandular recurrence. With all due allowance for this fallacy, however, it remains the fact that those who have practised an operation which makes no pretence to attain complete removal of the muscles (Whitehead, Butlin) have been able to show results which are, to say the least, not grossly inferior to those of surgeons who regularly use a much more extensive procedure.

It seems to me that these difficulties of prognosis are very well worthy of discussion. It cannot be supposed that cancer of the tongue is inherently capricious in a way that must remain incapable of analysis, or that between two apparently similar cases, one of which defies an extensive operation while the other yields to a comparatively trivial one, there is no real and discernible difference of type. Apart from its theoretical interest the question is of considerable practical importance, for there can be no doubt that one of the reasons why the public still to a considerable extent refuses to submit to really early treatment of cancer of the tongue is the inability of the surgeon to give in *any case, however early*, a reasonably certain assurance that a cure will be attained.

The "Superficial" Stage of Epithelioma.

The majority of epitheliomata pass through a period in their early stages—lasting, perhaps, for about three months on an average—when the growth is strictly localised and unaccompanied by any infiltration of the tissues beyond its clearly palpable margin. The tumour then feels like a hard disc superficially embedded in the tongue and projecting above its surface. The amount of projection is considerable in proportion to the bulk which lies below the general surface. The tumour feels hard, and owing to the absence of surrounding infiltration the contrast between its consistence and that of the adjacent tongue is very abrupt. The size of the tumour may be considerable, and yet these characters be retained. Large tumours of this type always project markedly in a cauliflower-like mass.

A growth in this superficial period if removed with a margin of palpably healthy tissue ½ to ¾ inch wide is practically certain not to recur. If therefore the characters just given can be clearly made out and an adequate operation is done the surgeon is justified in giving a very definitely favourable prognosis as to local recurrence. I have never seen such a case in which after a suitable operation local recurrence took place.

It is most important to recognise that the fact that a given tumour is in the superficial period of its growth has no bearing whatever on the question whether glandular infection has occurred or not. It should be accepted as an incontestable principle in the surgery of epithelioma that as soon as the diagnosis of the primary tumour can be made the presence of glandular infection must be assumed. Nevertheless, when glandular enlargement is palpably present it shows varieties corresponding in prognosis with the superficial (early) and diffuse (late) types of the primary growth. Some surgeons are inclined always to give a very grave prognosis when enlarged glands are present in cancer of the tongue. My own experience by no means confirms this attitude. Provided the glands show clinical characters similar to those of the superficial type of growth—that is to say, are hard and well defined, and free from any trace of inflammatory manifestations—their presence if a thorough operation be done can scarcely be regarded as making the prognosis worse than if none could be felt. Even the number of the glands to be felt is comparatively unimportant and is certainly of much less significance than the signs presented by the individual glands.

It seems certain that the maintenance of the superficial stage of the growth is the result of the energetic and to a certain extent successful resistance of the tissues of the body to invasion by the cancer. We may suppose that outlying cancer cells penetrating the tissues are rapidly destroyed, and that it is only the compact mass of the whole growth which can maintain itself and advance successfully. Such a state of affairs will produce the well-defined frontier between cancer and surrounding tissue which is characteristic of the condition clinically and will explain why removal of the tumour with a comparatively limited margin is successful in eradicating the disease. Similarly is to be explained the clinical fact that the greater the proportion of the bulk of a tumour which projects above the surrounding surface the less its local malignancy tends to be—in other words, that the papillary and cauliflower growths are less malignant than the ulcerous and nodular forms. From the point of view of the nourishment of a cancer it is clear that infiltration of the tissues is the most advantageous mode of growth. If, however, this is prevented by a high resistance of the body tissues, a large part of the growth of the tumour must result in external projection—a less advantageous method of progress, since it is sooner or later limited by failure in blood-supply, as is shown by the well-known tendency of all largely projecting tumours to slough.

The "Diffuse" Stage of Epithelioma.

Sooner or later in their course all epitheliomata undergo a change in their mode of progress which is manifested clinically by signs which, although not always conspicuous, are usually perceptible to careful observation. The most important sign is a loss of distinctness in the outline of the tumour. The boundary between the cancer and the surrounding tissue is no longer the hard, sharp line of the superficial stage, but is obscured by an induration which fades gradually into the tongue. This diffuseness in outline may be very evident or only very slightly marked, but the detection of it is always extremely important. At the same time there may be a little œdema about the tumour and sometimes increased pain and tenderness, while the tumour itself tends to appear less hard.

I have elsewhere referred to this change as the onset of submucous invasion. It bears no necessary relation to the size of the tumour, so that a comparatively small tumour may show it quite clearly, but it is of the gravest significance in prognosis. The type of operation which is perfectly adequate during the superficial stage is now no longer of the least use, and whatever operation is done a favourable prognosis can no longer be given with any degree of confidence. It is of great importance to recognise that quite small tumours may be of this type, and that certain cases occur in which the tumour is of this type from the first. The classical three varieties of early cancer of the tongue—the papillary, the ulcerous, and the nodular—include one, the nodular, which shows typically this precocious submucous invasion. Epitheliomata of the posterior third of the tongue and of the sublingual fold are apt to be of the same type, and with the nodular form of cancer of the anterior part constitute a group of infamous reputation as regards malignancy.

A similar stage in the development of the disease in the glands also occurs. As with the primary growth all cases show it sooner or later, and some cases show it from the first appearance of gland involvement. The glands are then ill-defined and rather soft, so that they are not always very distinctly palpable. A gland of this type is the worst possible manifestation that can be found in an early case; a single one, perhaps not an inch in diameter, is of much graver significance than a dozen of the well-defined hard variety. Later such glands are apt to be accompanied by œdema and diffuse brawny induration, possibly with redness of the skin. Such a case is very likely to be mistaken for an inflammatory lesion by the inexperienced and treated accordingly.

It is probable that the diffuse variety of the disease in the primary growth is always associated with the same form in the glands; it is certain that they usually go together.

The precocious development of early diffuse invasion seems particularly liable to occur in strong, healthy, well-nourished subjects of florid appearance and comparatively early age.

Experience shows that operations undertaken for epithelioma in which the diffuse stage has begun are particularly apt to be followed by early, rapidly growing, and diffuse recurrence even when the type of the disease has been recognised, the growth is quite small, and the excision has been very extensive. It cannot be doubted, therefore, that in these cases there is a diffusion of cancer cells throughout the tissues around the growth to a distance far beyond the palpable induration and extending into regions which do not display the least abnormality to the naked eye.

When, therefore, operations are undertaken for this type of the disease there is no chance of cure unless an extremely drastic procedure is adopted. A radical extirpation of the tongue muscles down to and perhaps including the great cornu and body of the hyoid bone at the least on the affected side is essential, and there is a good deal to be said for total extirpation of the tongue and hyoid bone. The ordinary forms of excision of the tongue without total removal of the affected muscles including their origin, is a mere mutilation without any sufficient prospect of cure to justify it.

The pathological conclusion to be drawn from the clinical behaviour of diffuse epithelioma seems to be that in such cases the resistance of

the body to invasion by the cancer has broken down, with the result that outlying cancer cells readily invade the tissues and survive and thrive at great distances from the mass of the tumour. The frontier between the cancer and the body is no longer defended and therefore ceases to be sharply marked. Invading outposts of cancer cells are no longer cut off as soon as they attempt to cross the boundary, but readily penetrate beyond it, extorting with no effort abundant nourishment from the passive and unresisting territory in which they find themselves. Such are doubtless the cases in which Cheatle found cancer cells living and active scattered throughout the muscles of the tongue at great distances from the primary growth. As has been already pointed out, the primary growth may yet be comparatively small when this collapse of the body resistance occurs. Indeed, it is probable that the so-called nodular form of cancer of the tongue owes its peculiarities to attacking a subject in whom the normal resistance is absent from the first. These cases of nodular cancer present appearances fully consistent with this view. The tumour grows from the mucous membrane and is fixed to it, but practically its whole bulk lies within the substance of the tongue. Over the summit of the mass the mucous membrane may be a little elevated and always allows the whitish colour of the tumour to show through. But the surface may be quite intact, and ulceration may still be absent at a time when operative cure of the disease is almost hopeless.

The fact that gland involvement in epithelioma does not as such greatly worsen the prognosis if the glands are of the hard, well-defined type suggests that gland involvement is not a stage in the progress of the disease due to a diminution of body resistance, but that directly an epithelioma begins it is able to affect the glands. Doubtless the growth of the cancer within the glands is energetically resisted and many early colonies of cancer there are exterminated, but the path to the glands is open from the first. When recurrence takes place after dissection for glands of the ill-defined type it occurs not, as a rule, in other glands beyond the region which has been dealt with, but in the tissues surrounding the area of operation. The suggestion of this fact is that when a gland becomes ill-defined the change means that the tissues surrounding the gland have lost their resistance to invasion and are being attacked successfully by the glandular mass of cancer in exactly the same way as the tissues about the primary growth are being attacked; but apparently it does not mean that the resistance of the lymphoid tissue itself has broken down. That this latter resistance remains high for a long period and even to the end is shown by the successful results of gland dissections (for gland involvement of the well-defined type), although the enlarged glands are numerous or possibly even bilateral, and by the fact that patients dying from gland recurrence rarely show invasion of the mediastinum. It is not, then, the progress of epithelioma along the lymphatics which constitutes the great difficulty in dealing with gland involvement, but rather the tendency of the surrounding tissues to lose their resistance to invasion by the glandular mass.

That, however, a general loss of lymphoid resistance to cancer can and does occasionally occur is well supported by clinical evidence. In my own experience it is chiefly an event of very long standing and chronic cases in which a series of incomplete gland dissections has been done. After perhaps several years, during which the disease has apparently been kept in check by the removal of individual glands as they become enlarged, there is suddenly an outburst of glandular enlargement over a wide area, and possibly even the whole body. Even then the individual glands may show no great tendency to invade surrounding parts, so that the condition seems to be one of collapse of lymphoid resistance without collapse of general tissue resistance. The occurrence is comparatively rare, but is a striking warning against trifling with even the most benign-looking gland involvement by partial operations.

The considerations it is desired to draw attention to may be repeated here in summary form. An epithelioma grows by local invasion of the tissues and by invasion of the lymphatic system. In early cases of the ordinary type growth in both these directions is energetically resisted. Successful treatment depends on both these antagonistic forces—the tissue resistance and the lymphatic resistance—being strong. As a rule the lymphatic resistance remains high throughout and no generalised lymphatic invasion occurs. In all cases, however, and in some quite early, the tissue resistance breaks down, and then diffuse invasion occurs both from the primary growth and the glands. The nodular form of cancer of the tongue is an admirable example of very early loss of tissue resistance.

It is maintained that the occurrence of this collapse of tissue resistance can be recognised clinically, and that prognosis depends on whether it has occurred or not. Operations undertaken before this event need be of only moderate severity, and yield very satisfactory results. Operations undertaken after this event must be very extensive and often seriously mutilating, and yield even then much less satisfactory results.

The liability to gland involvement is present from the first and cannot be regarded as constituting a definite stage in the disease. It follows, therefore, that a gland operation must be undertaken in every case, and that involvement of glands, provided there is no evidence of diffuse invasion of the tissues around them, is not of very serious prognostic significance.

II. *Prognosis as to Operative Dangers.*

The only serious dangers of even the most extensive operations are those due to sepsis, and I shall therefore make no attempt to deal with any others. Sepsis takes two forms—infection of the lungs and infection of the wound. The former if at all severe leads to abscess formation and gangrene with an almost necessarily fatal result; the latter may lead to acute septicæmia or to a cellulitis extending diffusely in the neck with the risk of mediastinitis and of secondary hæmorrhage.

In operations for growths of moderate size on the anterior part of the tongue these complications are not usually the cause of any serious trouble. When, however, the floor of the mouth, the posterior (pharyngeal) part of the tongue, or the pharyngeal wall is implicated, the danger is considerable. It is sometimes forgotten that the surgery of the mouth and pharynx has benefited from the introduction of antiseptic surgery less than the surgery of any other part, and that the surgeon working there has to elaborate a system of precautions against sepsis, which will include many features quite strange to the routine of ordinary aseptic technique.

Lung Complications.

Pneumonia or gangrene of the lung, for the terms are practically synonymous in this connexion, is unquestionably always due to inhalation of septic material into the lungs. No doubt blood sucked into the trachea frequently acts as a vehicle for such septic material, but the importance of it in itself has probably been exaggerated. Pneumonia not very uncommonly will occur after a preliminary gland operation if this has been extensive and prolonged, and there has been a large foul growth present in the mouth. During such an operation there is almost always some difficulty in maintaining a satisfactory airway; this obstruction greatly increases the amount of aspiration at the upper laryngeal opening, and so encourages the inhalation of septic matter from the growth. In operations on the primary growth the risk is, of course, very much greater, because to the factor of increased aspiration through partial obstruction is added disturbance of the growth which encourages the dislodgement of septic material from its surface.

The best precaution, therefore, against lung infection is the abolition of the possibility of aspiration. Some surgeons effect this by intratracheal administration of the anæsthetic. To my mind the risk of conveying septic material into the trachea during the introduction of the tube is a serious objection, and in my own practice I invariably use tracheotomy or laryngotomy—the latter usually for mouth operations as distinct from pharyngeal—followed by plugging of the pharynx. The little operation is quickly done and free from any risk of its own. In addition to its advantages in the control of pulmonary infection it has another which to my mind is almost as important. By rendering the breathing easy and effortless throughout it greatly diminishes the exhaustion of the patient. There can be little doubt that a long period of stormy, difficult respiration, chequered by intervals of struggling and coughing, is a very serious strain on the patient's strength. Such an experience is far from uncommon if it is attempted to do any of the more elaborate operations without means which allow of uniform quiet anæsthesia. For these reasons I regard the preliminary laryngotomy or tracheotomy as the one essential precaution in diminishing the danger of lung infections after operations for cancer of the tongue.

Local Infection of the Wound.

There can be little doubt that in ordinary cases of cancer of the tongue in which the growth is in the superficial stage local infection is a matter which concerns the patient's comfort and rapidity of convalescence more than it does his life. In such cases it can usually be prevented by adequate suture of the wound. It may seem to some, therefore, that in laying as much stress on it as I propose to do I am making too much of an inconsiderable matter. When we come, however, to operations for growths with deeply ulcerated surfaces and seated far back the dangers of local infection of the wound are admittedly very real. It is, of course, in operations of any extent upon the pharynx that this particular group of risks reaches its acme, and it is here, therefore, that the pathological conditions concerned and the prevention of them can be studied under most instructive conditions.

To a superficial examination the occurrence of grave conditions of local sepsis after operations has the same freakish character as has the attainment of cure of the disease. Similar seeming cases pursue a widely different course; one, perhaps, in which sepsis was not seriously feared develops extensive cellulitis, while another which seemed less favourable heals without causing serious anxiety.

A considerable experience of the surgery of the mouth and pharynx was necessary before even it became clear that the one thing that determines the occurrence or otherwise of grave local sepsis is the condition of the mouth. Operative technique, no doubt, can do much in limiting and controlling infection, but of itself it can give no complete safety. If the contents of the mouth have their ordinary virulent infectivity the most elaborate precautions and the most careful plastic protection of the wound may be brought to nought by uncontrollable sloughing inflammations. Ordinary cleansing of the mouth, scaling of teeth, removal of stumps, use of antiseptic washes with brush and dental silk make very little difference to the risk when carried out as a preliminary to operation. Moreover, patients with clean mouths and who are habitually careful with them are little if at all less liable to serious complications than those who are careless and whose mouths are obviously septic. I confess that this destruction of a time-honoured belief was a surprise to me, but it is also an admirable instance of the fact that the local pathology of the upper alimentary tract has many striking peculiarities.

On the other hand, *edentulous patients give rise to no serious anxiety on the score of sepsis.* I have never met with any exception to this rule, and I regard it as of the utmost value in forming a prognosis as to any proposed operation. It may be remarked also that in edentulous patients ulceration of the growth is much less and a much slower process than in those who still have teeth.

Supposing these were all the facts the solution of the problem would be very simple. It would merely be necessary to extract all the teeth present and then proceed to do the operation when the gums were healed. This is doubtless a drastic proposition, but I am quite sure that very few patients over 50, if the case were fairly put to them, would refuse their consent, especially if we could thereby guarantee a great reduction in the danger of the operation. I have put this proposal into practice, and while I have never had the least difficulty in obtaining the patient's consent to get rid of his remaining teeth, of which he is usually by now heartily tired, I have been a good deal disappointed by getting a great deal more sepsis than I expected.

It is clear, therefore, that there is a difference between the infectivity of the mouth of those who have recently lost their teeth and those who have been edentulous for a considerable time, so that we may conclude that some time must elapse between the extraction of the teeth and the operation. I am inclined to put this period in the neighbourhood of a month at the least. So great is the advantage to be expected that I am now willing to allow the growth to progress for that time, knowing that one's freedom in dealing with it and the diminution in danger quite compensate for the dangers of the delay. Moreover, I am inclined to doubt if the lapse of a month will ever convert a curable growth into an incurable one. It seems, therefore, that the intractable sloughing inflammations caused by contact with the oral secretions are due to an organism which is the invariable companion of the teeth, that its presence is independent of whether the

teeth or gums are obviously infected or not, and that following upon removal of the teeth it does not disappear from the mouth for some time after the gums have healed.

The practical consequences of these considerations are obvious enough. In the first place, a favourable prognosis as to the danger of the operation can always be given in the case of edentulous patients. Secondly, a powerful argument is furnished in favour of the opinion that as soon as people come to the age when the teeth begin rapidly to give more and more trouble—say about 50, which is also about the age at which malignant disease of the upper alimentary tract is at its commonest—total extraction is a much more reasonable procedure than the most skilful efforts of plastic dental surgery. From the point of view solely of one who has to deal with a number of cases of cancer of the mouth and pharynx one would say deliberately that if a man develops cancer in this region the possession of natural teeth is a misfortune almost as great as the malignant disease itself. Thirdly, it becomes a duty when a suspicion of the development of malignant disease occurs to lose no time in dealing radically with the teeth so as to allow as long an interval as possible for the mouth to recover before the operation. As I have already said, most patients at the age of 50 are glad enough to part with their remaining teeth if this course is firmly and reasonably advised. At this time of life the teeth are almost certainly becoming increasingly troublesome, and efforts to preserve them increasingly difficult and unsatisfactory. Greatly as one must admire the achievements of modern conservative dentistry one cannot help feeling that when the teeth can obviously last but very few years, these hard-won triumphs might very well be reserved for patients of a younger age in whom vanity is a stronger or at any rate a more respectable passion.

Harley-street, W.

TUBERCULOSIS OFFICER FOR ROSS-SHIRE.—At a meeting of the Ross-shire county council held on Oct. 15th it was unanimously decided to appoint a tuberculosis officer for the county at a salary of £500 per annum. It was also decided by a large majority to defer preparing a scheme for a central hospital for the treatment of tuberculosis until the new officer had had time to investigate and form an opinion as to which would be the better, a central hospital or small district hospitals.

UNIVERSITY OF ABERDEEN: OPENING OF WINTER SESSION.—The winter session in the faculties of medicine and science in the University of Aberdeen opened on Oct. 16th, when Professor Theodore Shennan delivered the introductory lecture from the chair of pathology and Professor F. Soddy delivered the introductory lecture from the chair of chemistry. Dr. John Parlane Kinloch also gave his first lecture in public health. Principal George Adam Smith was present at all the lectures and introduced the new teachers. Before welcoming Professor Shennan the Principal paid a tribute of respect and affection to his predecessor, Professor G. Dean, and in introducing Professor Soddy the Principal alluded to the ability and devotion with which Professor F. R. Japp had filled the chair of chemistry, to which Professor Soddy was now appointed, for 24 years, earning for himself in his retirement the cordial gratitude and esteem of the University. With regard to the new lectureship in public health, the Principal in welcoming Dr. Kinloch said that this lectureship was long overdue, and to-day they were congratulating themselves that it had at last been realised. On behalf of Professor Matthew Hay he expressed regret at his unavoidable absence.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF MALIGNANT DISEASE OF THE LUNG.

BY HUGH N. TAYLOR, M.A. CANTAB., M.D. DUB., F.R.C.S. EDIN.,
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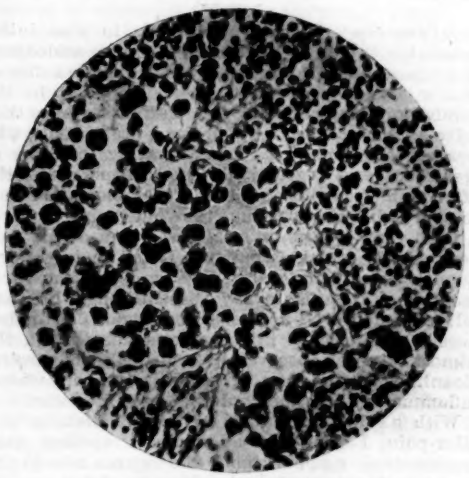
ON July 3rd I was asked to see in consultation a man, aged 38 years, who was said to be suffering from a pleuritic effusion, probably of a purulent nature, subsequent to an attack of pneumonia. I found an emaciated patient with the left chest full of fluid. He had a slight hacking cough occasionally, and there was a history of some six weeks' "illness," but no definite account of any pneumonia. The patient was said to have several times expectorated "blood." There was no rise in temperature, and the pulse, which was feeble, was some 84 to the minute. But the man was evidently very ill, and I urged that he should come



Reproduction of a photo-micrograph showing endothelial cells invading lymphoid tissue. (× 300 diameters.)

into the hospital, to which he was admitted the next day. When I saw him he had considerable dyspnœa but no pain. On aspiration—the first and only one—nearly six pints of fluid, deeply stained with blood, were withdrawn, but the dyspnœa was in no way relieved; in fact, the patient said that his "breathing was worse." There were some faint breath sounds after the tapping, but nothing very definite could be made out; no glandular enlargements could be felt. On two occasions he expectorated a small "currant jelly" mass. I formed the opinion that the case was probably one of malignant disease of the lung. The patient rapidly became weaker and died on July 12th, a week after admission.

As only a very limited post-mortem examination was allowed I could do no more than remove the left lung, which I found infiltrated at the root with a soft reddish growth; a mass of the same material was present on the surface of the lung in the submammary region, where it had become adherent

to the chest wall. I sent the lung to the Clinical Research Society and received the following report:—

This lung shows infiltration by a malignant growth, especially at the root. The growth is composed of large cells enclosed in an alveolated manner in a very scanty stroma. Its actual nature is not quite certain, but it is either a soft carcinoma or an endothelioma. If it is a primary growth it is probably the latter.

The illustration shows endotheliomatous material infiltrating lymphoid tissue. It is said that serous effusions are more usual in the nodular forms—i.e., in those of a scirrhous or epitheliomatous type, while the soft carcinoma or the endothelioma is evidenced by signs of consolidation with subsequent breaking down. In this case, however, there was nothing of the hard type to be felt either in the growth itself or in any of the glandular tissue at the root, while the effusion was very copious and deeply stained with blood.

Ebbw Vale.

NOTE ON LIMITATION OF THE AFTER-PAIN OF QUININE INJECTIONS.

BY A. G. PETER, M.B., CH.B. ABERD.

A SERIOUS practical drawback to the intramuscular injection of quinine is the undoubted after-pain which a large number of people suffer at the injection site, whether it be given in the lumbar or the gluteal region. Patients, where they have any choice, naturally prefer a practitioner who has not the reputation of advocating this line of treatment, and so greatly do some people dread the after-pain of quinine injections that they will resort to every kind of subterfuge to avoid them.

Last year one of my patients, whom owing to a very severe attack of malaria I had to inject frequently during the acute stage, wrote to me three months afterwards to say that although he then felt extremely well he was still conscious of tenderness at the sites of injection, and this though the utmost care was observed in securing strict surgical cleanliness at the time of injection, and no visible inflammatory reaction could be noted afterwards.

With a view to limiting if not abolishing this after-pain, I tried the addition of various local anæsthetics—e.g., eucaine B and novocaine—to the amount of quinine bihydrochloride given, usually between 10 and 20 grains, but with indifferent success. I then tried the addition of the recently introduced quinine and urea hydrochloride tablets, and was gratified to find a conspicuous absence of any after-pain when this drug was used. By trial the smallest amount required to ensure comfort afterwards was found to be half a grain of quinine and urea hydrochloride compound.

I have now had several severe cases of malaria where it has been necessary to give repeated hypodermics of quinine, and so far I have had no complaints from patients of after-pain at the injection site, although one of them was a man who was very sensitive to it, as I had proved by previous injection of quinine alone. I accordingly would suggest a wider trial of this combination, as patients will much more readily submit to injection, if they can be assured that they will have nothing further to pain them than the initial stab of the needle.

The points which call for note in this matter are: 1. A half-grain tablet of quinine and urea hydrochloride appears to be sufficient to remove the after-pain of quinine injections. My supply was obtained from Messrs. Parke, Davis, and Co., but I understand they can be obtained from any of the well-known chemists. 2. One tablet is added to the amount of quinine to be given, about 2 c.c. of water are then added, and the boiled solution received into a sterile 2 c.c. syringe for injection. 3. The solution is equally efficacious when boiled, but in too concentrated solution is apt to block the needle if not given at once.

Prestea, British West Africa.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Exhibition of Cases and Specimens.—Making Intestinal Fistula after Operation upon the Abdomen.

A MEETING of this section was held on Oct. 8th, Dr. W. S. A. GRIFFITH being in the chair.

Dr. H. RUSSELL ANDREWS recorded a case of Severe Bleeding after the Menopause due to Rupture of a Vein in the Endometrium. The patient was aged 49 years; her periods ceased in 1910; there was a severe flooding in May, 1911. On admission the patient was blanched and a tumour was found reaching to above the umbilicus; this was proved at operation to be a degenerating fibroid. The tumour did not bulge into the cavity of the uterus, but the latter was enlarged and two dilated veins were seen on the surface of the endometrium; one of these had an opening visible to the naked eye. When the uterus was squeezed blood oozed out of this opening. The opening was large enough to admit a piece of thick silkworm gut.

Dr. ARTHUR E. GILES and Dr. CUTHBERT LOCKYER showed a case of Pregnancy Occurring within the Ovary. The patient was aged 32 years. She consulted Dr. Giles for sterility. Six months previously a menstrual period had been missed, after which the monthly flow was resumed as usual. On examination Dr. Giles found a rounded swelling of the size of a duck's egg to the right of the uterus; this was diagnosed as an ectopic gestation. At the operation the tumour was found to belong to the right ovary. The corresponding tube and mesosalpinx were normal. With the aid of the epidiascope Dr. Lockyer demonstrated: (1) that the pregnancy sac was completely surrounded by a capsule of ovarian stroma; (2) the presence of a large amniotic sac in which no fœtus had been discovered; (3) large chorionic villi with their mesoblast undergoing mucoid degeneration; (4) calcareous deposits in the blood clot around the villi; (5) decidual reaction in the connective tissue of the medullary portion of the ovary; and (6) decidual reaction in the cortical substance of the ovary. No lutein lamina could be found investing the gestation sac. The case was one of true ovarian pregnancy in which the embryo had died and the amniotic sac had become dilated by hydramnios. There were no visible blood-vessels in the enlarged villi, but their degeneration and the presence of calcareous deposits on the blood clot suggested that the death of the ovum must have occurred some long time before the operation.

Dr. GILES showed slides prepared from a case of Chorion Epithelioma removed from a patient aged 50 years, accompanied by a report on the histological findings by Dr. Dudgeon and Mr. Gordon Ley.—Remarks were made by Dr. W. BLAIR BELL, Dr. HERBERT R. SPENCER, and Mr. GORDON LEY.

Mr. J. D. MALCOLM showed a Fibromyoma Uteri complicated by diffuse simple papilloma of the interior of the uterus. Those members who examined the sections were of the unanimous opinion that the "papilloma" was an adenocarcinoma.

Mr. DONALD W. ROY communicated a case of Puerperal Eclampsia, fatal, from rupture of a large subcapsular hæmatoma of the liver into the peritoneal cavity.

Mr. MALCOLM read a paper on cases in which an Intestinal Fistula was made with a View to Facilitate

Recovery from Operation upon the Abdomen. He discussed the condition sometimes arising after an abdominal section in which the surgeon believed that if the patient's bowels would move recovery would follow, but if the bowels would not move the patient would die. The symptoms were usually attributed to a paralysis or a paresis of the intestine, and this, in turn, was commonly believed to be due to a septic peritonitis. Mr. Malcolm expressed the opinion that in many of these cases the cause of trouble was not a septic peritonitis, but that the symptoms were due in part to a feebleness of peristaltic force, in part to some more or less definite obstruction of the intestine, and that the conditions might be correctly described as one of acute intestinal stasis. He recalled the fact that when opium was given in full doses after every abdominal section most of the cases did well, but if no gases escaped from the anus the patient always died not later than the fifth day and a slight spreading peritonitis was found after death. If in one of these cases a second operation was performed in the hope of finding an obstruction early on the fourth day or sooner, but when the symptoms were well developed, there was never any sign of spreading peritonitis in a typical case. Moreover, sometimes, if no second operation was undertaken, a patient immensely distended and apparently moribund would, without apparent cause, begin to pass gases from the rectum and all the symptoms would be completely and rapidly resolved. It was argued that the peritonitis found after death, when death occurred, could not be the cause of the symptoms, and that it was a consequence of the mode of death. The effect of modern treatment by substituting stimulation of the bowel and rational feeding for continuous administration of opium and starvation was pointed out, and records of cases were given in support of these views. In three cases patients seemed certain to die from vomiting and distension respectively on the tenth, fifth, and fifth days after an abdominal section. A Paul's tube was therefore inserted into the small intestine in two cases and into the cæcum in the third, and immediate relief of all symptoms followed. In the first case the patient died 16 months after the operation from general tuberculous disease with the fistula still open. In the other two cases the fistula was closed by operation and recovery was complete. In these three cases the bowel below the fistula resumed its functions without further surgical treatment. In a fourth case under similar circumstances the second operation failed and the patient died. There was no post-mortem examination, but there was a focus of infection from which peritonitis might have started. Mr. Malcolm assisted at two other operations for the relief of distension five days after the primary operation and these proved fatal, one being certainly a case of septic peritonitis. In both these cases attempts to release adhesions were made. In Mr. Malcolm's fourth case there was intense pain over the site of a colon anastomosis and great distension on the third day after the operation when complete relief was given by inserting a Paul's tube into the cæcum. The fistula closed spontaneously when an ileosigmoidostomy was performed 16 days later. In two other cases a fistula was made in the course of an operation—once in the ileum, once in the cæcum—to keep the lower bowel quiet, with good results, the fistula being closed later by operation. The importance of not making a fistula unnecessarily was insisted upon, but the fact that this treatment would occasionally save a life that would otherwise be lost was shown by the records given. The making of a fistula for the relief of distension was not likely to be successful in a case of septic peritonitis. If an early diagnosis could be made in a strong patient an immediate release of adhesions might give the most satisfactory results, but after the third day, if the patient was weak and if there were many adhesions, an extensive operation would almost certainly prove fatal, whereas a simple formation of a fistula might bring about a cure.—The paper was discussed by Dr. W. W. H. TATE, Dr. HENRY BRIGGS, Dr. C. HUBERT ROBERTS, Dr. GILES, and Dr. MARY SCHARLIEB.

VACCINATION IN BRISTOL.—From July 1st to Dec. 31st, 1913, 4467 births were registered; of this number 1093 were successfully vaccinated and 763 had certificates of conscientious objections. Of the remainder many had removed to "places unknown," and a considerable number were "unaccounted for."

Reviews and Notices of Books.

The Practice of Surgery.

By RUSSELL J. HOWARD, M.S. Lond., F.R.C.S. Eng., Surgeon, Poplar Hospital; Assistant Surgeon, London Hospital; and Joint Lecturer on Surgery and Teacher of Operative Surgery, London Hospital Medical College. With 8 coloured plates and 523 illustrations in the text. London: Edward Arnold. 1914. Pp. 1227. Price 21*s.* net.

THERE are many text-books on surgery, and new examples make frequent appearance, many of which possess some feature which commends them to the student. It is not at all easy to write a perfect text-book of surgery for the student, for while it must contain all that the student needs for his examination, it is especially difficult to deal with the latest additions to surgery. The writer must be able to discriminate between the new points which are important and are likely to be permanent and those which are merely of temporary interest. Still more he has to take care that those personal opinions which every surgeon holds and which have not been widely accepted should not be allowed to obtrude themselves too prominently.

In spite of these great difficulties several excellent text-books of surgery have appeared within recent years, and after a careful examination we do not hesitate to include amongst them the work which lies before us. In the first place it is clear; the author has taken great care to make the descriptions such as may be easily understood even by junior students; this is of great importance, for it is far better for the student to have an explanation which he does not need than for him to fail to find an explanation which he requires. In the second place the work is adequately illustrated, also a matter of great importance, for many things are much more easily learnt by the eye than by a written description. The illustrations have been chosen judiciously; many have been taken from the rich stores of the museum of the London Hospital Medical College, and there are numerous photographs of patients which should be very informing to the student.

Altogether we have much enjoyed reading this book, and consider that it should take a high place among the surgical text-books used by students. Here and there are places in which some judicious alterations might be made for the second edition when the time comes for it to appear. For example, in the account of the operative treatment of inguinal hernia the descriptions of the various operations which are performed are far too brief to be understood by the average student, though they will be perfectly clear to the surgeon.

Serology of Nervous and Mental Diseases.

By D. M. KAPLAN, M.D., Director of Clinical and Research Laboratories of the Neurological Institute, New York City, &c. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 346. Price 15*s.* net.

WE own to regarding with some suspicion each new work that appears on the subject of serum treatment and diagnosis, but we can say at once that the book before us well justifies its existence. It is evidently written by one who is an expert in the subject with which he deals, and who therefore has words of counsel to give which are deserving of attention.

The work is arranged in four parts. The first deals with the technique of lumbar puncture, with

the composition of the cerebro-spinal fluid in health and disease, and with the method of performing the complement-fixation test for syphilis associated with the name of Wassermann. The second part is devoted to the serology of diseases other than syphilis, and the third to nervous and mental affections due to that protean disorder. Finally, Part IV. describes in detail the administration of salvarsan and the effects which may follow its employment.

The author's attitude in relation to the subject dealt with is much to be commended. He points out that errors may occur in the practice of even the most careful and experienced worker, and that the laboratory specialist must be on his guard against making assertions arising out of his tests as to clinical conditions when all he should report is the actual result obtained. He should be content to report that the Wassermann reaction is positive, not that the patient is suffering from syphilis, and so forth. "Surtout point de zêle" in short. He holds that the direction of error in this test is towards an undue number of positive reactions. On the other hand, syphilis is not cured by one dose of salvarsan as was formerly hoped. Dr. Kaplan notes as remarkable the frequency of a positive Wassermann reaction in cases of sclerodermia and of Raynaud's disease as suggesting a possible connexion between these affections and syphilis.

The book is well written and interesting. It has a sufficient number of cuts and plates, without being over illustrated. One small lapse in diction we feel bound to protest against, and that is the use of "most" for "almost" ("most everyone," p. 51). We have noted the same vulgarism in other books of late, and hope that it is not going to creep into the language either of this country or of the United States.

Development and Anatomy of the Nasal Accessory Sinuses in Man.

By WARREN B. DAVIS, M.D., Corinna Borden Keen Research Fellow of Jefferson Medical College. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 172. Price 15*s.* net.

THE fact that much has been published and still more has been said about the adult anatomy, the diseases, and more particularly the surgical treatment of the diseases of the accessory sinuses of the nose is evidence of the differences in the views expressed. These differences in some measure may have arisen from insufficient attention being paid to the embryology and development of the sinuses. The publication of the research work by Dr. Davis into the "Development and Anatomy of the Nasal Accessory Sinuses in Man" is therefore a valuable addition to the literature of the subject. The book is a record of observations based on 290 lateral nasal walls, showing the various stages and types of development of the accessory sinus areas from the sixtieth day of fœtal life to advanced maturity.

The difficulty in conducting a research of this kind is that of obtaining the necessary material. The bodies of children between the ages of 2 and 16 years are seldom obtainable in the dissecting rooms of European institutions as well as in America. It was necessary, therefore, in order to complete such a series to develop a technique by which the accessory sinus areas could be removed *en masse* at the time of post-mortem examinations, and still allow reconstruction of the face without marked disfigurement. In one of the opening chapters the methods used in obtaining and preparing the specimens are described.

A feature of the book are the 57 separate plates. The illustrations are natural size, unless otherwise stated in the legends, and are from drawings very accurately made by Miss Dorothy Peters, who has evidently given the most careful attention to detail. The plates are well printed, and the legends whilst succinct are fully descriptive. No pains have been spared in the production of a monograph which will be of value to the expert as well as to the beginner desirous of placing his knowledge on a sure foundation.

Scrofulosis.

By Professor G. CORNET. Translated by J. E. BULLOCK, M.D. Brux., Assistant Medical Officer, the Eversfield Chest Hospital, St. Leonards-on-Sea. London: John Bale, Sons, and Danielsson, Limited. 1914. Pp. 515. Price 15*s.*

THE terms "scrofulosis" and "scrofula" have given rise to a considerable amount of confusion as regards their exact meaning. In the Hippocratic period χοίραδες was applied to the swollen glands in the neck which, forming a continuous outline with the lower jaw and shoulders, produce a resemblance to the full contour of the pig's neck. At the present time some observers consider scrofulosis to be a slowly progressing localised tuberculosis, others are of opinion that the condition is due to a certain disposition or dyscrasia, which in its course often presents tuberculous complications. In recent times changes in other organs have been more definitely taken into consideration, such as the skin, mucous membranes, and joints.

In the volume now before us an interesting and comprehensive survey of the whole subject is given, which, although obscure in some details, nevertheless presents the nature, diagnosis, and treatment of scrofulosis in a scientific manner. Dr. Cornet considers that in the sense now accepted scrofulosis comprises a complex of symptoms almost entirely confined to childhood and early youth. Such, he says, affect the skin and the various mucous membranes: lupus, scrofuloderma, lichen, tuberculides, eczema, impetigo, chronic blepharitis, and phlyctenules; others are middle-ear disease, chronic catarrh of the air passages, rhinitis, pharyngitis, bronchitis, hyperplasia of the tonsils, catarrh of the alimentary canals, and lastly, certain affections of the bones and joints. This list is a satisfactory one, and accurately cites the changes likely to be encountered. These processes are, of course, not of themselves specific of scrofulosis, but are distinguished from other non-scrofulous phenomena of a similar kind by their persistency, frequent recurrence, and multiplicity. Two forms of scrofulosis are distinguished: (1) the tuberculous form due to the tubercle bacillus; (2) a non-tuberculous form caused by other bacteria. We believe bacteriologists will agree with Dr. Cornet that these organisms are mostly the staphylococcus (aureus and albus) or the streptococcus. To these he adds (3) a combination of both processes, the tuberculous and the pyogenous, the mixed form of scrofulosis, the effects of which differ according as the tubercle bacillus or other germs come into play first or simultaneously.

The relationship of scrofulosis to tubercle bacilli of the bovine type is discussed at length, and Dr. Cornet's well-known observations on the modes of infection by the human, bovine, and avian types are

again chronicled. He repeats the opinion that bovine bacilli are almost avirulent for adults and are only virulent for children to a modified degree, very seldom producing a pronounced tuberculosis. The symptomatology of the condition is well described, and the measures to be adopted in regard to prophylaxis are duly set forth. The principles of the therapeutics of scrofulosis are clearly laid down and many valuable suggestions are made. Amongst internal remedies iodine takes first place. Cod-liver oil is described as an auxiliary of nutrition rather than as a medicine.

The whole volume is full of interest, and demonstrates the large amount of labour involved in its production. A word of praise must be awarded to Dr. Bullock for the manner in which he has translated the work.

L'Appareil Thymo-Thyroïdien: Thyroïdes, Parathyroïdes, Thymus. Anatomie, Physiologie, Pathologie, Déductions Thérapeutiques.

Par L. LAUNOY, D.Sc., Assistant de Physiologie à l'Institut Pasteur. Paris: J. B. Baillière et Fils. 1914. Pp. 405. Price 14 francs.

THIS work deals with what the author calls the "thymo-thyroid apparatus," comprising three distinct, but anatomically closely related, organs. A careful description of the embryology, anatomy, physiology, and pathology of each organ is given. The descriptions will be of interest both to physiologists and comparative anatomists, because they deal with the great variety of form, position, and general relations of these organs in all classes of vertebrates. Besides collating and giving a résumé of the work of other observers the author gives the result of his own experiments. References are given to the newer literature, and in the text itself there are 50 illustrations.

Embryologically, all three organs have the same origin from the mesoderm, being derived from the epithelium of the branchial clefts; the thymus and parathyroid from the epithelium of the branchial pouches, which are, of course, saccular dilatations of the branchial region of the digestive tube. The author regards the evidence as sufficient to group all three organs under the title "thymo-thyroid apparatus." The parathyroids are absolutely essential for life, because their removal causes death sooner or later. So, also, is the thymus—at least, in young animals. The thyroids do not seem to be so immediately necessary to life. As regards the relation to tetany, the thymus stands next to the parathyroid, and the same appears to be true as regards the psychical factor. The effects of removal of the thymus—idiocy—should be compared with those that obtain after removal of the thyroids. These two organs seem to govern the metabolism of the calcium salts in the body. The loss of calcium after their removal is the necessary corollary of the acid intoxication or acidosis consecutive to the excision of each of these organs.

As to the thyro-parathyroid apparatus, the one cannot functionally replace the other. After their excision the thyroids are responsible for the myxœdema, the cutaneous trophic disturbances, the dementia and other well-known symptoms, while the parathyroids are responsible for the tetany. Removal of the thyroid causes a special cachexia, compatible with long life. It does not appear to be demonstrated that exophthalmic goitre is due to hyperthyroidism. At any rate, experimental hyperthyroidisation causes phenomena which are difficult to reconcile with those of Graves's disease. Removal of the thyroid is followed by hypertrophy of the hypophysis. Nor is it demonstrated that the iodised protein substances in the thyroid owe their specific action to the iodine they contain. All mammals develop tetany after removal of the parathyroids, and their complete removal is rapidly fatal. Birds—especially young specimens—are less sensitive than mammals to removal of the thyro-parathyroid couple. The tetany may supervene suddenly, as in the dog, cat, and rabbit, or only after many days—e.g., 30 days in the monkey. It may be more or less permanent if part of the parathyroid remain.

The thymus, though a transitory organ, never completely disappears. It is an organ very susceptible to all causes of infection. The X rays cause a permanent involution. Its removal causes a "cachexia thymopriva," slow but fatal. Is it an organ related to the formation of nucleins? It appears to be correlated functionally with the genital organs. In 80 per cent. of the cases of Graves's disease there has been found a persistent large thymus.

Such are the arguments and conclusions of this most useful monograph.

The Psychopathology of Everyday Life.

By Professor Dr. SIGMUND FREUD, LL.D. Authorised English edition, with Introduction, by A. A. BRILL, Ph.B., M.D., Chief of Clinic of Psychiatry, Columbia University, &c. London: T. Fisher Unwin. 1914. Pp. 342. Price 12*s.* 6*d.* net.

THE English translation of Professor Freud's book "Zur Psychopathologie des Alltagslebens" is made from the fourth German edition, which was reviewed in THE LANCET of Dec. 20th, 1913, p. 1776. It is not therefore necessary to go over the ground again, but reference may be made to one or two additional matters suggested by a re-reading of the book in its English garb.

The assertion is made by the author that the forgetting of names is conditioned, in general, by two considerations: either the name itself touches something unpleasant, or it is brought into connexion with other associations which are influenced by such effects. Various elaborate and complex instances are supplied to exemplify these assertions. It is curious, however, that the influence of interest is ignored or minimised, and also that the most obvious explanation of name-forgetting, as in the case, say, of a physician who sees hundreds of out-patients weekly, is not so much as mentioned. For a whole series of seemingly accidental awkward movements, again, we are assured that the correct explanation is that the movements are in reality skilful and designed. If we knock something off a table, we do it by design, never by accident. Professor Freud's words are: "I actually believe that we must accept this explanation." If we give a beggar or a cabman a half sovereign instead of a sixpence, "the solution of such mishandling is simple: it is an act of sacrifice designed to mollify fate, to avert evil, and so on." In place of the term "chance actions," Professor Freud would substitute "symptomatic actions," for they are said to give expression to something which the actor himself does not suspect in them.

For all these statements, and others even more far-fetched, we are assured that psycho-analysis furnishes the justification. In a word, the whole structure is based on the reliability of psycho-analysis as a method of investigation,

and it stands or falls with it. Apart, therefore, from the inherent improbability of much that is herein offered as the sole possible explanation of trifling events, apart from the author's refusal to accept the plain and the obvious, and his penchant for the recondite and the subtle, he has staked his faith entirely on the trustworthiness of psycho-analysis as a means of discovering the secrets hidden, as he believes, in the recesses of the mind. The objections which have been formulated to the genuineness of the interpretations put on the data thus obtained apply therefore to many of the "conclusions" here advanced with all the assurance of dogma.

The Diagnosis and Treatment of Digestive Diseases: A Practical Treatise for Students and Practitioners.

By GEORGE M. NILES, M.D., Professor of Clinical Medicine, Atlanta Medical College, Georgia. London: Henry Kimpton. Pp 597. Price 21*s.* net.

THE growth of specialisation has produced in the United States the "professor of gastro-enterology," and this volume is an admirable compendium of the latest knowledge and the most recent technique in the field.

The resources at our command for diagnosis in chronic diseases of the digestive tract, especially of malignant disease of the stomach, have increased enormously in the last few years, and the author's account of them, notably of the use of Roentgen rays after bismuth meals, and of rectal injection with sulphate of barium, shows not only a complete grasp of technique, but great judgment in estimation of difficulties and limitations. The account of recent X ray work is one of the best sections of the book, reviewing carefully the deductions in diagnosis drawn by Holzknecht, Jolasse, and others. It requires great experience to interpret properly the appearance of visceral skiagrams, even of the best technical quality, and many an expert would gain knowledge from these pages. Considerable space is rightly assigned to the manipulation of the stomach tube. Simple as this instrument is, there is frequently a prejudice against its use, due to faulty manipulation. Dr. Niles employs the Friedlieb method of irrigation with a simple funnel. The author's procedure for duodenal feeding is that of Max Einhorn, who originally developed it.

All the chapters on treatment appear to be full, judicious, and well arranged. The author is throughout so careful to acknowledge obligation to other workers in this field and to allow them proper credit, that we are surprised that a reference bibliography has not been appended. The style of writing is simple, precise, and yet readable. So excellent is the whole that it is permissible to criticise trifles. There is not, and there never could be, such a word as to "ptose." "Ptosis" (a falling) is a good Greek word, but it is derived from πίπτω, and the proper derivation would be to "pipt," which would repel most seekers after new technical words. Dr. Niles perhaps dismisses intestinal antiseptics too abruptly, apparently because he considers it impossible to render the intestinal tract "aseptic." But it is possible to lessen the degree of protein putrefaction, even in the large intestine, and many well-known drugs will aid its prevention.

The work is truly a practical treatise suitable not only for students and practitioners, but even for well-informed specialists.

LIBRARY TABLE.

A Surgical Handbook for the Use of Students, Practitioners, House Surgeons, and Dressers. By FRANCIS M. CAIRD, M.B. Edin., F.R.C.S. Edin., and CHARLES W. CATHCART, M.B. Edin., F.R.C.S. Eng. and Edin. Sixteenth edition, revised and enlarged. With 208 illustrations. London: Charles Griffin and Co., Limited. 1914. Pp. 364. Price 8*s.* 6*d.* net.—On many occasions we have expressed our appreciation of earlier editions of this valuable work, and we are glad to see this the latest issue. An examination of the book shows that many alterations have been made in it since the appearance of the fifteenth edition, especially in the sections dealing with anæsthesia, with the treatment of fractures, and with spinal caries. Many of the older diagrams have been withdrawn and have been replaced by new, so that evidently much has been done to bring the book up to date. Here and there are statements which may be open to discussion, but we bear willing testimony to the high standard which has been reached by this deservedly popular handbook.

Industrial Training, with Special Reference to the Conditions Prevailing in London. By N. B. DEARLE, M.A., Fellow of All Souls, Oxford; Shaw Research Student of the London School of Economics and Political Science, 1907–09. London: P. S. King and Co. 1914. Pp. 605. Price 10*s.* 6*d.* net.—Mr. Dearle has presented in a readable form the facts connected with industrial training, principally with regard to London, accompanied by suggestions for remedying defects to which he calls attention and general constructive criticism. Some day, no doubt in less troubled times than these, his work will be found useful by those interested in educational and social reform. Those who study it now will find in the conditions he describes striking evidence of the social mischief due to lack of organised and disciplined effort, and to the unwillingness of employers and employed to acquiesce in or to demand educational organisation for their own benefit. Mr. Dearle's work will be found interesting by those who wish for information as to conditions as they are in this country. It does not, however, pretend to describe in detail with a view to our instruction industrial training as exists elsewhere—in America, for example, or in that highly organised and industrially trained country with which we are now at war—and it is rather through comparison and the desire to emulate the achievements of others that we must improve ourselves eventually.

On the Effects of Volcanic Action in the Production of Epidemic Diseases in the Animal and in the Vegetable Creation, and in the Production of Hurricanes and Abnormal Atmospherical Vicissitudes. By H. J. JOHNSTON-LAVIS, M.D., D.Ch., M.R.C.S. Eng., L.S.A. Lond., F.G.S. London: John Bale, Sons, and Danielsson, Limited. 1914. Pp. 67. Price 3*s.* net.—This essay gained the Parkin prize of £100 awarded by the Royal College of Physicians of Edinburgh. It discusses the physics and chemistry of volcanic eruption and the physical effects of eruptions on human beings and animals. Pages 24–49 are taken up with a "small selection" of citations of different authors on the supposed relationship of eruptions to epidemic diseases of man, animals, and plants, and these are followed by a description of the physical effects of eruptions on

plant life and the influence of eruptions in the production of hurricanes and abnormal atmospheric vicissitudes. The author concludes from the aseptic and antiseptic character of all volcanic materials, "with the exception of mud from the sea bottom, from crater lakes, or from the organic contaminated slope of the mountain," that there is no *direct* relationship between volcanic eruptions and disease in man or animals. He recognises and considers, however, the following indirect ways in which epidemic diseases may be related to volcanic outbursts: 1. Erosive effects of irritant and depressing fumes on the ocular, respiratory, and to some extent digestive, mucous membrane may lower resistance. 2. Watercourses may be disturbed or contaminated through landslips, and proper drainage may be interfered with. 3. The moral depression from fear may reduce resistance, as also may the imperfect nourishment consequent on the environment and conditions.

JOURNALS AND MAGAZINES.

Quarterly Journal of Microscopical Science. Edited by Sir RAY LANKESTER, K.C.B., with the coöperation of Professor SYDNEY J. HICKSON, Professor E. A. MINCHIN, Professor GILBERT C. BOURNE, and Professor J. GRAHAM KERR. Vol. LX., Part 3, September, 1914. London: J. and A. Churchill. Pp. 150. Price 10*s.*—The first article in the September number consists of Observations on the Gametogenesis of Grantia Compressa, by Mr. Arthur Dendy, professor of zoology in King's College, London. His attention began to be directed towards the problem of the origin of the germ-cells in calcareous sponges while writing a memoir on the common British species, Grantia compressa. In the course of this work it became evident that although the ova of this sponge were easily recognisable in the maternal tissues in various stages of growth, and also embryos in various stages of development, no one had ever been able to find the spermatozoa. In April, 1912, Professor Dendy accordingly paid a visit to the laboratory of the Marine Biological Association at Plymouth, and although unable to find spermatozoa in living specimens, he preserved material which on subsequent investigation furnished the clue to the solution of the problem. He found that the sponge was hermaphrodite, producing both male and female germ-cells simultaneously, but that the spermatozoa were produced in comparatively small numbers, the minute sperm-morulæ being scattered here and there, enclosed in spermatocysts, between the collared cells of the chamber walls, and also occurring free in the flagellate chambers. The spermatogonia in these sperm-morulæ were extremely minute, and nothing was ascertained with regard to their mode of division. Apparently they were sometimes transferred as sperm-morulæ to the inhalant canals of the same or of another individual. With regard to the process of oögenesis Professor Dendy has been able to give a fairly complete account of a number of very interesting stages. One of the most remarkable phenomena observed during his investigations was the nutrition of the growing oöcyte by means of phagocytic nurse cells.—In the second article Miss Monica Taylor discusses the chromosome complex of culex pipiens. For the purpose of this research she obtained very numerous pupæ of this gnat and placed them in small ponds which were covered over with large cages made of mosquito-netting, so that the resulting imagines could be observed. Her general conclusions are as follows: (1) the somatic number of chromosomes is three, both in the male and female of culex pipiens; (2) the number of chromosomes in the spermatogonia as well as in the primary and secondary spermatocytes and spermatids is three; (3) the spermatogonial cells are not characterised by a synizesis stage, which latter serves to mark off the spermatogonial from the secondary spermatocyte stage; (4) the nuclear membrane persists throughout mitosis; (5) the synizesis stage represents an inactive phase of the nucleus in spermatogenesis; and (6) a synizesis stage occurs in somatic nuclei.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

BOVININE.

(THE BOVININE CO., NEW YORK. LONDON AGENCY: W. EDWARDS AND SON, 157, QUEEN VICTORIA-STREET, LONDON, E.C.)

ACCORDING to our analysis there can be little doubt of the nutritive and tonic value of this preparation. Above all, it contains a directly assimilable albumin which is coagulated on heating. We found that the amount of coagulum yielded was no less than 14·85 per cent. This yielded on incineration mineral matter rich in iron. In the original fluid the iron occurs in the form of an organic compound. The spectroscope shows the distinctive bands given by hæmoglobin. The total solid matters amounted to 22·02 per cent. and the mineral matter to 1·44 per cent. The preparation keeps well, and to the preservatives used there can be no objection. They amount to a small proportion of alcohol and glycerine. In cases where a rapid nutritive and tonic are required bovinine seems well suited. Having regard to its special use for invalid purposes the price of it is consistent with its value.

DRAKENSTEIN WINE.

(E. WESTMACOTT AND CO., 368, STRAND, LONDON, W.C.)

This is a white wine produced from a Rhein stock in Cape Colony. It is a great improvement on the wines produced there some years ago. It is elegant, light, and agreeable to the palate, while possessing a distinctive flavour. For all practical purposes it is free from sugar, the actual amount present according to our analysis being 0·116 per cent. The total solid matters only amounted to 2·09 per cent. and the mineral salts to 0·16 per cent. It is free from excess of acid, the volatile acidity amounting only to 0·072 per cent., and the fixed acidity reckoned as tartaric acid to 0·525 per cent. The alcohol amounted to 13·43 per cent. by volume. The wine is well suited to dietetic purposes.

PLASMON OAT COCOA.

(INTERNATIONAL PLASMON, LIMITED, 66A, FARRINGDON-STREET, LONDON, E.C.)

This preparation shows a careful incorporation of the constituents indicated, and when prepared according to instructions gives a very palatable and highly nutritious food. In particular it is reinforced with the tissue-building material of milk. According to our analysis it contains just upon 20 per cent. of milk protein. In addition, there is 15·60 per cent. of fat present derived chiefly from cocoa. The moisture amounted to 6·50 per cent. and the mineral matters to 4·80 per cent. In these last there was an abundance of phosphates. It is a wholesome, sustaining food.

(1) BANANINA; AND (2) BARLEY FLOUR.

(BANANA BREAD FLOUR FOOD, LIMITED, CEREAL-COURT, 16, BRUNSWICK-STREET, LIVERPOOL.)

1. Bananina is an interesting product obtained by the drying and milling of banana fruit. It has the characteristic smell of the banana and is a fine flour which readily dissolves under the influence of the salivary and other ferments. The ripe banana contains an appreciable amount of sugar owing to the action of its own enzyme on the starch. Banana flour contains a small proportion of sugar inasmuch as it is prepared before the

fruit is fully ripe. We found present 2·40 per cent. of sugar. In addition to its energy value as a food banana flour supplies also some tissue-building material, since, according to our analysis, bananina contains 5·29 per cent. of protein (0·84 nitrogen). 2. We have examined also a specimen of barley flour which under the microscope presented the characteristic appearance of the genuine product. Barley shows less protein than occurs in wheat flour, but it contains more fat and it is richer in mineral constituents. The flour we examined was a genuine natural product, and there was no evidence of chemical treatment. In particular it yielded a yellow colouring matter to petrol, which shows that it has not been bleached.

VOCALZONE PREPARATIONS.

(MEGGESON AND CO., LIMITED, 14 AND 15, MILES-LANE, LONDON, E.C.)

These preparations attracted some attention at the medical exhibition held in Aberdeen in connexion with the last meeting of the British Medical Association. Their composition is based on the choice of well-known, harmless, and agreeable antiseptics put together in a menstruum which is attractive in application. Three preparations were submitted to us. The first was a clear green fluid, which is mentioned favourably in the treatment of coryza, nasal catarrh, and other secretory troubles in the nasal passages. It is a soothing, unirritating, cleansing fluid which can be used either as a douche or coarse spray. It has also been employed in diseases of the pharynx and larynx. Vocalzone gargle is composed of suitable antiseptics coupled with an astringent which makes it effective as a gargle. Lastly, vocalzone pastilles are designed to soothe irritable conditions of the throat and bronchial tubes. They are demulcent and sedative.

MAPLE SUGAR AND SYRUP.

(THE CANADIAN MAPLE PRODUCTS COMPANY, LIMITED, 1, ENDELL-STREET, LONDON, W.C.)

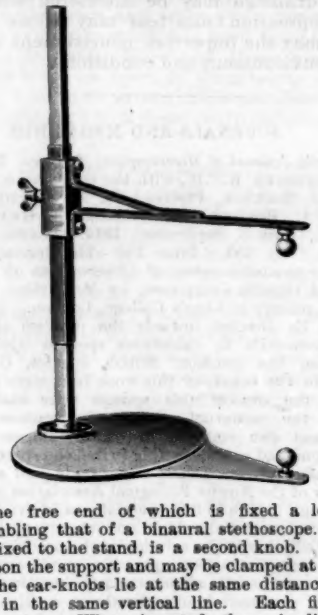
Maple sugar is chemically identical with cane or beet sugar. It has, however, a characteristic and to many persons an attractive flavour due to aromatic substances occurring in the bark of the tree. Maple sugar also is said to be slightly laxative. Apart from sweetness it has a quite interesting flavour, which is soon appreciated by those who have had no previous experience of it. Our analysis of the sugar was as follows: Moisture, 4·00 per cent.; mineral matter, 0·60 per cent.; invert sugar, 10·00 per cent.; and sucrose, 85·40 per cent. We also examined the syrup, which has to an even more marked degree the peculiar flavour of the sugar itself. We find that it is very susceptible to decomposition, for after a few days the syrup began to effervesce very rapidly due to alcoholic fermentation.

New Inventions.

AN AID TO THE RADIOGRAPHY OF THE PITUITARY FOSSA.

IN order to compare the size and appearance of the pituitary fossa in a series of radiograms it is obvious that the true lateral position of the skull must be chosen in each case. The axis of the tube must lie parallel to the plate and its target immediately beneath the fossa. This position of the head may be obtained: (*a*) by means of two metallic rings, one surrounding each external auditory meatus[1]; (*b*) by inserting a small coin into each of these apertures[2]; or (*c*) by placing a lead shot over the skin on each side of the head at the site of the sella turcica,[3] and subsequently manipulating the tube and the head until the image of one circle falls within the other, or until the two images of the coins and shot coincide. When shot are employed the target remains in the same position for the radiogram, but in the former devices (*a* and *b*) it is moved one inch towards the orbit and one inch towards the vertex of the skull.

As the time required for a good radiogram of the fossa may be as long as 30 seconds there is ample opportunity, especially in children, for slight movement of the head, the occurrence of which would prejudice the result. The simple instrument shown in the accompanying illustration (the model of which was constructed for me by Mr. Ilsley, electrician to the X ray and electrical departments of St. Bartholomew's Hospital) fixes and enables one to place the head in the desired position. It consists of a stand carrying a metallic



bar, at the free end of which is fixed a leaden ear-piece resembling that of a binaural stethoscope. Opposite to it, and fixed to the stand, is a second knob. The bar is movable upon the support and may be clamped at the proper height. The ear-knobs lie at the same distance from the pillar and in the same vertical line. Each fits into an auditory meatus. When inserted there is little or no tendency for the patient to alter the position. A piece of lead is then placed at the junction of the middle and outer third of a line running from the outer canthus of the eye to the external meatus, and the target is moved until it strikes the metal. The lead being removed, the diaphragm is opened and a radiogram taken. The determination of the true lateral position by means of radioscopy alone is uncertain and therefore inadequate for exact measurement.

The clip may be used when the tube is above and the plate beneath the head. Also it may be employed for stereoscopic radiograms of the fossa and orbit, for obtaining accurate lateral views of the face and the sinuses, &c. When the couch has a canvas top it may be preferable to lay upon it a rectangular piece of three-ply wood of suitable width for the support of the head. It may be provided with a spirit-level and with feet to raise the head an inch or more, taking care that the target remains the same distance in all cases. The head-clip is manufactured and listed by Mr. Leslie Miller, 66, Hatton-garden, London, E.C. It is obvious that the head may be fixed in a true antero-posterior position by the employment of the same principle and by the suitable modification of the instrument.

WALKER OVEREND, M.A., M.D. Oxon.,
Chief Assistant in the X Ray Department of St. Bartholomew's Hospital; Honorary Radiologist to the East Sussex Hospital, Hastings.

St. Leonards-on-Sea.

[1] W. Hampson, THE LANCET, March 7th, 1914, p. 714.

[2] N. S. Finzi, Royal Society of Medicine, Feb. 24th, 1914.

[3] S. Gilbert Scott, Royal Society of Medicine, Feb. 24th, 1914

THE LANCET.

LONDON: SATURDAY, OCTOBER 24, 1914.

The Public Health Service and the National Crisis.

UNDER this title Dr. HERBERT JONES on Friday last, Oct. 16th, delivered the presidential address of the Society of Medical Officers of Health, and in spirited words indicated the part that has been played, that is now being played, and that will have to be played in the future by our public health service in securing for the British Empire the success that is necessary for its existence. For the magnitude of the struggle in which we are involved, and its deep significance both in the cause of justice and in the interests of national welfare, are now seen by all. With legitimate complacency Dr. HERBERT JONES pointed to the material upon which the country is now drawing to fill the ranks of the army as distinctly better than that upon which reliance had to be placed 20 years ago. At that time 40 per cent. of recruits were rejected on medical inspection; ten years later the percentage of rejections was reduced to 30; and now the discarded amount to but little over 20 per cent. of the total applicants, a good standard being maintained among the 700,000 young men who have recently joined the colours. A great share in the improved physique of the country is owing to our public health service, and this is our reason for returning so soon to a subject which we dealt with fully last week.

A large part of Dr. HERBERT JONES'S address was naturally occupied in explaining the relations now existent between the Territorial Army and the sanitary organisation of the country, and these relations show that we have learnt the lesson of the South African war, when more men were put out of action by preventable disease than by the bullets of our gallant friends who were then the enemy. At that time it was considered unnecessary to employ on the spot medical officers who had special knowledge of sanitary affairs. Upon the creation of the Territorial Force opportunity was taken to include in the new body provision for a sanitary service, and in 1907 Sir ALFRED KEOGH, then and now again, Director-General of the Army Medical Department, suggested that the medical officers of health of the country should combine in a voluntary organisation having for its object the preventive care of the masses of men who in the event of mobilisation would be required to prepare for the defence of the country. From this movement sprang the *à la suite* sanitary service, a well-conceived organisation, whose establishment, however, amounted to only 120 officers, and these had limited spheres of action. The want of flexibility to which the terms of the Regulations might have led has been remedied since, and we now know that wherever troops are stationed they will obtain the good offices of the medical officer of health of the locality. The Army Council has also indicated to the generals in command that the medical officer of health is in the best position to give information respecting both the existence of infectious diseases in any district and the drainage and water-supply to be found. To quote Dr. HERBERT JONES:—

"With regard to the billeting of troops the medical officer of health is now to be communicated with before troops march into his district, with a view to obtaining his expert advice and coöperation in arranging the billets under the best sanitary conditions available. In the case of towns a telegram will be sent in advance to the medical officer of health appointing a time and place of meeting with the billeting officers, who are sent in advance to arrange for the housing of troops. In districts outside towns a telegram in similar terms will be sent to the medical officer of health of the county in which the troops are to be billeted. At Territorial Force Headquarters the medical officer of health will be consulted before men are furnished with billets, and where camps are formed and maintained he will be consulted and his visits encouraged."

That the medical officers of health of the country will rise to this great occasion and assist our military authorities with zeal and judgment no one who knows the thoroughness which has for so long marked their administrative work can for a moment doubt. But the duties which they have been instructed to take up, and which they have assumed with pride and alacrity, will call for great delicacy as well as complete thoroughness in execution. There are still among our military authorities those who are ready to suspect in non-military assistance undesirable interference in the higher spheres of the art of war, and such authorities will need to be approached circumspectly, but with full recognition that all parts of our fighting machine are equally alive to the paramount importance of securing the health of the troops.

The War and the Dislocation of Private Practice.

WE have already referred to the fact that the depletion of the staffs of the general hospitals of the country has all over the kingdom been very marked owing to the mobilisation of the Territorial Forces, and it is now recognised that the dislocation of private practice which has followed upon the same cause is becoming grave; indeed, if sickness should break out in many districts of the country the outcome would be truly serious. The Executive Committee of the General Medical Council has throughout paid anxious attention to this matter, and we are able to add that the

War Office is in full sympathy with the Council in any effort to prevent needless removal of a large body of medical men from their regular duties. We all recognise that at this moment military exigencies must come first: the General Medical Council feels this as clearly as every medical man. The machinery of the War Office must not be hampered in the slightest degree, and it follows upon this that military medical service must be unconditional—or rather it had to be so in the comparatively early stages of what is going to be a long struggle. But we are now completing the third month of the war. The first terrific pressure on military and general organisation has been met, and met with considerable success. It was inevitable that there should be some places where order could not be so quickly established as in other places. It was inevitable, too, that shortage in one direction should wear an aggravated appearance owing to an absolute excess of provision in another. There are things which can be got quickly, and things which it takes time to procure. There are men exactly fitted for certain duties, who may not be immediately available; and men whose services can be obtained at once, while their services, however valuable, are unfortunately not exactly what is most urgently required at the moment. At the beginning of August the country was weltering in these troubles, the war having broken out with such suddenness, but in every direction confusion has steadily yielded to the tireless labour of organisation. And the time has certainly come now when small and particular adjustments could be effected, although these would have been impossible when crying needs made it imperative that all orders should be general and unconditional.

In particular it may, we think, now be possible to permit some medical practitioners, whom mobilisation has removed far from their ordinary sphere of work, and whose value to the community would be much greater in that sphere than elsewhere, to make exchanges; and we hope and believe that the War Office will permit of the flexibility thus suggested. In the first place, there is no shortage whatever of medical men willing to serve their country anywhere and in any capacity. To our certain knowledge several thousand practitioners are willing to place themselves at the disposal of the War Office, or have absolutely done so already. Some of these men are younger than others, and in many instances are discharging no duties which cannot be effectively discharged by others. They are surely indicated for service abroad rather than those men whose absence for an indefinite time in, say, India or Egypt would mean a dangerous loss to the community amongst which they carry on their medical practice. It must be understood that the question of shirking does not for one moment arise; we are not pleading the cause of any medical men who wish to be quit of their patriotic obligations.

We are perfectly convinced that every single medical man who has volunteered for service during the war, or who by the possession of a Territorial commission has become a part of our fighting forces, has only one idea, and that is to do his best for his country. But there are very many instances where a man will get into the wrong place unless some individual exceptions to general rules are permitted. It is very difficult for representation of this sort to be made by any medical man if the slightest suspicion should attach to him as one who has desired to avoid personal risks or expenses. But if it becomes clear that certain exchanges are sanctioned in deference to the public need, and in order to preserve the health of the community, while in no way endangering that of the troops, then no difficulty will arise. Undoubtedly there are some medical men at the present moment away from their practices, and under indefinite orders to remain away, whose regular work cannot well be done by proxy, while their medico-military duties would not suffer in other hands. Some of these medical men may be asked to serve under conditions of Imperial service, when a difficult case is much aggravated by its probable duration for a long time. We have here an example of what could not be avoided in the face of a sudden mobilisation—namely, profuseness and scarcity occurring simultaneously. Evidently there is now being provided an excess of scientific skill and attention in some directions creating a dearth of valuable services in other directions. But we are confident that the existing position is now appreciated by the War Office, and that no obstacles will be raised to certain methods of adjustment.

Annotations.

"Ne quid nimis."

NATURE AND NURTURE IN MENTAL DEVELOPMENT.

MUCH difference of opinion has always existed as to the relative importance of the factors of heredity and environment respectively in the development of the individual. At the one extreme is the attitude of Lombroso, who believed that criminals are born and not made; at the other is the view that the individual can be what he chooses to be. Social workers, ignorant of, or unfamiliar with, the facts of heredity as they impress themselves on members of the medical profession, are apt perhaps rather to concentrate attention on the matter of environment, and to emphasise the handicap imposed by uncongenial surroundings; still more, of course, by actual lack of the ordinary decencies of life, by overcrowding, insanitation, and the like. Medical men, again, who are brought into contact, it may be, with a hereditary *tare* showing itself in the third and fourth generation, and aware also of the extreme frequency with which a neuropathic heredity, similar or dissimilar, can be traced in the subjects of nervous and mental disease, as well as in the mere defective, *arriéré*, or *déséquilibré*, may feel

that the individual can rise superior to his surroundings but not to his heredity, and consider that mental development to its full extent can never be expected in a child handicapped from birth. The problem is far indeed from being simple. Social, educative, hygienic elements—all that is indicated by the term "breeding"—contribute to the development of that healthy mind in a healthy body which is not always attained by mere biological excellence. There is, however, a deeper significance for the individual in the possession of a normally functioning body than that which the inheritance of an unblemished strain gives. There is more in mental health than integrity of the nervous constitution with which the individual is endowed at birth. Researches of recent years show that there is a biochemical association and interrelation of all the organs of the body, and that the ductless glands and sexual glands generate subtle and potent chemical substances whose action—nutritive, stimulating, and controlling—on the nervous system is of fundamental importance. Aware as we are of the rôle played by instincts and emotions in the building up of character, we may nevertheless be somewhat unprepared for the statement that natural physiological processes associated with the rise into activity of these glands are of integral importance in the development of the passions and sentiments. Viewed in this light, character is compact of traits whose underlying basis is dependent on the normal activity of hitherto little understood and appreciated glandular structures, which, as has been said, influence the nervous system to an extent scarcely realised. Those who are interested in this question—and who can afford to ignore it?—should read the recent Chadwick lectures delivered by Dr. F. W. Mott, and now issued in a small volume with the title that heads this annotation.[1] To any who have followed Dr. Mott's recent work they will not, perhaps, be found to contain any very new or novel observations; but the writer has put together, in a concise and practical form, many instructive data bearing on the problem, and his book will well repay perusal. He draws a distinction between the hereditary raw material of mentality and the social heritage slowly built up by man, of which, as he says, the brain is the receptor and storehouse, and shows that the finished product of education depends for its efficiency both upon a good mental and bodily raw material and opportunity of reaping the full advantages of the harvest of human thought and progress. Dr. Mott possesses the enviable faculty of making the meaning of his deep researches clear. Simple such problems as he deals with can never be, but here is an author who removes all needless obscurity.

[1] Nature and Nurture in Mental Development. By F. W. Mott, M.D. Lond., F.R.C.P. Lond., F.R.S. London: John Murray. 1914. Pp. 151. Price 3s. 6d. net.

THE CONTAMINATION OF ARMY UNIFORMS.

THIRTY-SIX years ago we published a report on the Contamination of Uniforms provided to the British Army made for us by Special Commissioners. At that time, and often with the laudable desire to help soldiers' widows, a good deal of work was given out from the Government army clothing depôts. This was notably the case at the Pimlico depôt, and our Commissioners traced the making of certain uniforms to houses where there were cases of scarlet fever and small-pox. The report naturally caused considerable sensation. Questioned in the House, Mr. Gathorne Hardy, Secretary for War, said there had only been one case of small-pox during the previous five years among those who at the Pimlico works had handled the clothes as they were brought back from private dwellings where they might have been in contact with cases of infectious disease. The pertinence of the reply was lost, however, when it was shown that there were only three persons so employed, and it was felt that the danger to the army of home tailoring in insanitary surroundings was very real. A much closer watch over the premises where uniforms were given out to be made was instituted at once, and later some measures of disinfection were introduced. It would seem that the danger is still with us, though the state of our public health is now so good that it may be present in a less degree, while legislation against sweating has been of good effect. However, no one can read the descriptions of the life in the trenches, especially such trenches as the Germans have built near Soissons, and which our troops may penetrate, without feeling the need of exercising the greatest care to prevent the advent of specific disease germs in the line of battle. Soldiers who have to lead a life of appalling hardship for weeks on end, in hourly touch with death, and literally soaked in their vile environment would form an easy prey. The evil is not yet eradicated. At Bethnal Green a few days ago a master tailor had to answer two summonses for neglecting to keep a list of the names and addresses of outworkers according to the law. The offence leading to the present prosecution was discovered by the sanitary inspector at Bethnal Green, who ascertained that a woman was at work making an army great-coat in a house where scarlet fever had broken out. The master tailor had failed to keep a list of outworkers, though he had given out work to three persons. It was urged in court that there had been risk of carrying infection to the men who were laying down their lives for the country. Nevertheless, the defendant was only fined 10s. and £1 18s. costs. Now that so many uniforms are required and must be made at the utmost speed, the risk of such neglect as that just described increases in due proportion to the pressure brought to bear. Extra watchfulness is therefore imperatively necessary.

THE DANGER OF DIFFUSION OF TYPHOID FEVER AND CHOLERA BY OYSTERS AND ITS REMEDY.

Professor E. Bertarelli, of Parma, has drawn attention to the possibility of practical prophylaxis with regard to infection by oysters. Assuming as proved that the bacillus typhosus and the cholera vibrio are not found as habitual denizens in oysters, these molluscs must be held innocent in themselves, but if either of these germs, and more importantly the cholera vibrio on account of its greater motility, reaches the valves of an oyster through the medium of infected water it will be caught in the meshes of the parenchyma, and, so to speak, "squat" there. It is, moreover, an established fact that, given the infection of a tract of sea coast with the germs of typhoid or cholera, and seeing that sea water is a good life-preserver, the pathogenic germs in question are enabled to concentrate in the oysters with relative facility, maintaining themselves there for a considerable period without changing their characteristics. However, the sojourn of these germs in the oyster, provided the infection of the water is transitory, cannot last for long periods of time, and, as a rule, does not exceed one week, but may reach two. Acting on this fact, the writer

suggests a method of abolishing the risk of infection. By placing an oyster which has been tainted into pure sea water it will gradually free itself of its accidental flora. This scheme has been put into practice in the reservoirs at Concarneau in France, sea water raised mechanically being first passed through coarse filters, then through sand. The sea water thus filtered passes into reservoirs containing the oysters, where the water is slowly changed. In from six to eight days the purification of the oysters is completed. The technical details of such an installation are not described, but are stated to be extremely simple. With regard to the cost, no precise figures can be given for keeping a definite number of oysters in reservoir, but if the data given by certain French undertakings are approximately true, it must be believed that the cost would be represented by a very few pence of increase in the price of a dozen of the molluscs, including in this increase the capital expenditure for the plant, mortgages, cost of pumping the sea water, and administration.

"TIPPERMALLUCH'S RECEIPTS."

Sir Walter Scott, in a memoir of his early life, penned about a century ago, records how at the age of three years he was often wrapped in a sheepskin taken from a newly slaughtered animal, and in this "Tartar-like habiliment" lay on the floor while his paternal grandfather and old General Sir George MacDougal, of Makerstoun, bent over him and tried to entice him to use his limbs by pulling their watches along the ground. He had fallen lame after teething, and his parents, though they were related to Dr. Wood and Dr. Rutherford, famous in the Edinburgh of their day, "grasped at every prospect of cure which was held out by the promise of empirics, or of ancient ladies or gentlemen." A raw skin or hide was, of course, supposed to be productive of strength. The idea lingers among savages to-day, but in the Scotland of 1774 it was pretty widely believed in by a nation famous for its education and rationality. That prince of sceptics, David Hume, died in 1776, but before his death the prevailing superstition in matters medical of his contemporaries had been strengthened by the publication of a second edition of "Tippermalluch's Receipts," a work which must be read to be conceived. Who "that worthy and ingenious gentleman" John Moncrieff of Tippermalluch may have been it is impossible at this distance of time to find out, for his name occurs in no biography and Tippermalluch figures in no gazetteer. There being a village of Malluch in Lanarkshire, however, we are perhaps right in inferring that Tippermalluch is in its neighbourhood, and that it belongs to the Celtic half of Scotland and had at one time strong Gaelic medical traditions. The book, which is comparable to the famous "Thousand Notable Things" of the south of England, of which an edition containing numberless quack remedies was published at Salisbury at the close of the eighteenth century, dates manifestly from a period long prior to 1775, when the second edition was published in Leith, or, indeed, from 1712 when the book first saw the light. So full of magic and of the influence of the stars are the "Receipts" that we are justified in supposing that they date from savage or pagan times. To quote only a few remedies. "The heart of a wolf eaten or drunken, cures the epilepsy." Again, "a wolf's skin worn about the middle" preserves from this disease. "For an hysterical passion, take the powder of the flesh of a wolf and wear a piece of the said flesh salted always about you." The last wolf is supposed to have been killed in Scotland in 1680, hence these remedies may be said to date from a period long prior to the eighteenth century. Others are concerned with amulets and charms. A ring set with a topaz is held to be a cure for "running of the reins." The root of satyrion held in the hand is an aphrodisiac. The hairs of a white dog hung round the neck are prone to mitigate epileptic fits, while coral and saffron, "rolled in the skin of a bladder" and hung round the throat cure a semitertian fever, as does an emerald worn in the same way. Plague may be cured by hanging the roots of the pimpernel round the neck, or by carrying about a carbuncle, ruby, garnet, hyacinth, sapphire, or agate. A man's own urine and fæces, passed through a cloth and drunk, are another remedy for the plague, while for fistula "a man's dung burnt, adding thereto powder of pepper, passeth all other kinds of cures." A "cancerous fistula" is cured by "ashes of a dog's head burnt." Goats' dung takes away pain and swelling. Dung is of constant use; this points back to the time when savages believed that excrement, urine, blood, and so forth, contained the immortal element in man. Akin to the foregoing usages is Tippermalluch's recipe for a wound in the breast—"Cause the patient suck the milk of a woman's breast, and also make injections of the same in the wound." Human milk is prescribed in the same way for consumption. The remedies are mostly older than the age of signaturism, and surprising as they appear there is a factor common to many of them—namely, the idea that the humours and excrements of the body are of medicinal value. As a rule, the old chapbooks, printed in the South, are shy of appearing too openly superstitious, but in this work a long section is openly devoted to the subject of "mischievous acts, and putting of devils to the flight." St. John's wort, known as *fuga demonum*, hung in a house hinders these last. And we are further told that "whoever carries upon him eringo roots shall be preserved from witchcraft. The loadstone keeped upon a man removes disorder between man and wife. A pyot roasted speedily recovers the sick to health, and relieves all who have been enchanted from their birth." This prodigious book of pagan receipts was no sinister secret publication. It appears to have been sold by an enterprising bookseller, one William Coke, whose detailed list of wares must have rendered him extremely popular among all classes in Midlothian.

THE MEDICAL REGISTER.

WE wish to draw attention to the importance of notifying changes of address to the Registrar of the General Medical Council for insertion in the Medical Register. Omission to do this sometimes leads to a temporary removal of the name, with its consequent inconvenience; and apart from this the Register is the official list of the medical profession, and all should assist to keep it accurate. The Register is now singularly free from error, but it can only be kept so by the coöperation of the medical profession, who are urged to send all alterations of residence at once in a legible hand to the Registrar at 299, Oxford-street, London, W., and such communications should be signed with the full name. A statement of the difficulties which arise through failure on the part

of practitioners to advise the Registrar of their changes of address will be found in a letter from Mr. A. J. Cockington, the acting Registrar, which we publish this week. Proceedings in the courts have shown that the slackness of certain members of the medical profession in this respect has been taken advantage of by the impersonating rogue.

PLAGUE CLOUDS IN SOUTHERN EUROPE.

APART from imported cases and a few localised outbreaks, of which the Oporto epidemic in 1899 was the most serious, Europe has enjoyed a comparative immunity from plague during the 20 years in which the present pandemic has been ravaging most quarters of the globe. During the past few months, however, outbreaks of the disease have been reported in three countries in Southern Europe—namely, Greece, Italy, and Portugal—in the order named, as well as in certain Levantine ports which are in frequent communication with Europe by means of shipping. It is well known to epidemiologists that since 1899 plague has been annually epidemic in Egypt, including the Mediterranean ports of Alexandria and Port Said, and that the malady has manifested itself at various ports on the coast of Syria and along the southern and western shores of Asia Minor. During the summer months of the current year plague was reported to have occurred in the ports of Jaffa, Beirut, and Tripoli in Syria, and in Adalia and Smyrna in Asia Minor.[1] The disease also appeared shortly afterwards in several islands in the Ægean Sea lying off the western coast of Asia Minor, including Rhodes, Chios or Scio, and Mitylene or Lesbos; its presence was likewise observed about the same time in the Greek island of Syra, the most important of the Cyclades. In September several cases of plague were notified at the port of Salonica on the coast of Macedonia, and at Piræus, the port of Athens, 12 persons were attacked by the disease. During the same month a group of ten plague cases occurred in the seaport town of Catania in Sicily, and early in October eight other cases were reported in Portugal, in one of the suburbs of Lisbon. It is probable that the islands in the Ægean Sea were infected from one or other of the affected ports in Asia Minor, and that the infection was carried from these islands westwards to Greece and perhaps to Sicily, though locally Alexandria is regarded as the source of the mischief in the latter case. In this connexion it has to be remembered that the islands of Chios and Mitylene have been held by Greece since the last Balkan war, and that Rhodes is at present occupied by the Italians, so that it is not unlikely that the disease may have been conveyed through shipping from the occupied islands to Salonica, Syra, and Piræus on the one hand and to Catania on the other. The recent infection of the Lisbon suburb is more difficult to account for, and as yet no definite information is available to explain the occurrence. So far as is known Portugal has remained free from plague since the early months of 1900, when the Oporto epidemic of 1899 came to an end, after 310 persons had been attacked, of whom 107 died. The origin of that outbreak appears never to have been satisfactorily cleared up. As regards current plague in Portugal's possessions outside Europe the presence of the disease in the island of Terceira, in the Azores, was reported last December, but no cases have been heard of during the present year. It is, however, possible that the disease has been appearing in the Azores during 1914, and that cases have been intentionally concealed, or have been overlooked owing to their mild character. The infection, therefore, may have been brought by ship from Terceira to Lisbon. Be this as it may, the fact remains that groups of plague cases quite recently have occurred almost simultaneously in Greece, Italy, and Portugal. These outbreaks will doubtless be dealt with in a satisfactory manner by modern methods with a view to prevent any further extension of the infection, and British port medical officers of health will also no doubt be keeping a sharp look-out for vessels hailing from the infected ports of Southern Europe and the Levant so as to avert the landing of plague upon our own shores.

[1] THE LANCET, Oct. 10th, 1914, p. 912.

AT the conclusion of the delivery of the Harveian oration by Sir Richard Douglas Powell before the Royal College of Physicians of London on Monday last, Sir Ronald Ross, F.R.S., was presented with the Bisset Hawkins Memorial medal for distinguished services in the advancement of sanitary science and public health.

THE Bradshaw lecture on "Some Clinical Contributions to the Study of Glycosuria" will be delivered before the Royal College of Physicians of London by Dr. Nestor Tirard on Tuesday, Nov. 3rd, at 5 o'clock.

FURTHER NOTES UPON THE WOUNDED IN THE PRESENT CAMPAIGN.[1]

BY G. H. MAKINS, C.B., F.R.C.S. ENG.,
COLONEL, A.M.S.; CONSULTING SURGEON TO THE FORCES OVERSEAS.

Oct. 14th, 1914.

THE last fortnight has seen a great decrease in the number of wounded men in the hospitals both in Paris and along the western lines of communication, while it is now possible to form a more definite opinion as to the progress made by the wounds themselves. Subsequent events have by no means belied the impression gained at an earlier date, that the wounds would do well when the patients could be at rest and under more satisfactory conditions. The means of transport have been very materially improved both with regard to the hospital trains themselves and as to the rapidity with which the patients can be removed to the general or stationary hospitals. Under certain conditions the increased fleet of motor ambulances has also proved of value, but the cars are only suitable for cases that can bear much shaking.

I have just returned from a visit to the hospitals along the western lines of communication and have had the opportunity of seeing a number of the more severe cases after an interval of 14 days. A very great difference is to be observed; although the wounds have been suppurating the patients are in good condition generally, and locally granulation has been rapid and healthy with steady contraction of the deep cavities and extensive wound surfaces. The gangrenous cellulitis has disappeared, and it appears probable that the most serious factor in the infections was streptococcic in nature. It is to be

[1] THE LANCET, Oct. 10th, 1914, p. 905.

hoped that with the more settled military conditions now existing this complication may become a thing of the past. Multiple proximal incisions proved the best method of treatment.

The Treatment of Tetanus.

In this region the more serious complication of tetanus has also become far less common in concurrence with the less seriously septic state of the wounds. It is still too early to form any opinion as to the success of the prophylactic measures which have been resorted to, but much is to be hoped for from them, and possibly a still greater advantage may be gained from the removal of our troops from a district in which tetanus is notoriously common amongst the civil population in times of peace.

The methods of treatment which have been adopted have ranged over the whole area of past experience, the only routine plan having been the injection of antitetanic serum in large doses. At the Pasteur Institute, where two cures have been obtained, serum treatment by subcutaneous injection was the main element; at other hospitals the serum has sometimes been administered intravenously or by the intrathecal route. Beyond this, in some cases 20 per cent. peroxide of hydrogen solution has been injected subcutaneously and oxygen inhalations have been tried, while in all peroxide of hydrogen has been employed locally to the wound. Subcutaneous injections of magnesium sulphate have been tried to control spasm. Especially at Angers subcutaneous injections of 2 per cent. carbolic acid have been the favourite treatment, as much as 22 grains being administered per diem without any unpleasant results. Both in the English and French hospitals there this method was regarded with much confidence, and at No. 5 General Hospital I was shown two cases upon the high road to recovery treated by this method in combination with serum. In a large majority of all the cases chloral has been given by mouth or by rectum in large doses, and chloroform inhalations have been resorted to for severe and painful spasm.

In spite of this very varied treatment the main factor in the prognosis has, as in past experience, proved to lie in the length of the incubation period. Few if any cases have recovered where symptoms developed before the tenth day following the wound. Of some ten cases promising recovery which have come under my own observation the incubation period varied from 10 to 15 days. The type of disease has been somewhat variable, the only constant features being the "facies" and trismus. In the most acute cases general spasm was not infrequently absent, but in these the intense general septicæmia no doubt overshadowed the purely tetanic signs. In many cases local spasm of the affected limb, often extremely painful, has been a marked character.

Local surgical measures have been little employed; the wounds have been too large for excision, and in the few instances in which amputation of a limb has been resorted to no favourable result has been attained. The same may be said about the method favoured by some of the French surgeons of dividing the great sciatic nerve when the leg or foot was the seat of injury.

Nature of Injuries.

With regard to any special characteristics of the local injuries not much remains to be said. The common lodgment of fragments of shells is naturally a marked feature, also the very large area of laceration within when the wound of entry is comparatively small, suggesting a revolution of the missile within the limb continued after the moment of impact. I have twice seen the iron wad of a shrapnel shell which had been removed, once from the leg, and once from the buttock, in either case the missile having entered edgeways by a very moderate-sized slit wound. Retained pointed bullets are far from uncommon, and, as has been before remarked, contour wounds, especially around the chest wall, are often seen. Wounds of the head seen in the hospitals are of the tangential type in a very great preponderance; those traversing the skull are comparatively rare. This is no doubt to be explained by the frequency with which the injuries are caused by shrapnel bullets travelling with low velocity. The depressed fragments produced by the shrapnel bullets are of a larger size than those resulting from blows from rifle bullets of small calibre. There seems little doubt that the injuries produced by the English bullet are more severe as a rule than those resulting from the German. It may be that this is partly due to a lower velocity of flight in the case of bullets fired from machine guns, which are so freely used by the German army. Either bullet, however, when striking with high velocity is prone to fragmentation. Trephining of the skull performed for local pressure symptoms has as a rule been followed by very gratifying results, more or less complete recovery from paralysis occurring in many cases, showing that the area of destruction is not necessarily great. The spinal injuries are as usual of a depressing character, but where paraplegia has resulted from shrapnel wounds not actually impinging on the spinal canal recovery seems more rapid than in the case of similar signs accompanying wounds by bullets of small calibre. Signs of union are evident in a considerable proportion of the compound fractures.

Installation of a "General Hospital."

A number of the general hospitals are now in full working order, some installed in buildings, some utilising their tents. The Indian type of marquee is admirable for hospital purposes. The very full and complete equipment of these hospitals is very readily adapted for use within a building, in which case the tents can be stored or are available if extension of accommodation is needed. A number of the hospitals have been accommodated in buildings, some in large hotels or club premises, others in school buildings. No. 4 General Hospital at Versailles is established in the luxurious Trianon Palace Hotel; the general excellence of this hospital has already been adverted to in the public press, and it has been doing a large amount of good work. Such buildings, as is the case with smaller similar hospitals in Paris, possess the advantage of some very excellent large wards in the public rooms and abundant bath and sanitary arrangements, but are somewhat more difficult to work on the upper floors from the number of rooms in which the patients are distributed. This difficulty is reduced to a minimum in the Trianon Palace Hotel in consequence of the simplicity of the building, all the rooms being arranged on either side of long straight corridors running the whole length of the hotel. Up to the present time the patients have also enjoyed the great advantage of a charming garden in which those who are up can roam or sit the greater part of the day.

A somewhat more difficult problem is presented when a building not designed for residential purposes is provided. A good illustration is afforded by No. 5 General Hospital, which had allotted to it a large new school building, nearing completion, but not yet equipped for its purpose. The building had been first utilised as a temporary barracks, and when the soldiers went out it was left in the condition not uncommon after temporary occupation by troops. The first task was to cleanse the building itself and clean up the surrounding ground which had served the purpose of a general latrine. The water-supply of the town was connected with the pipes already existing within the building, and electric light was installed throughout. The type equipment of a general hospital was then introduced to convert the empty rooms to their new purpose, and in a few days several hundred patients were admitted for treatment.

A commodious operating theatre, well lighted for use by day or night and thoroughly equipped with instruments and sterilising apparatus, was arranged, and in an adjoining room the X ray outfit was set up. On an upper floor a pathological laboratory was established. To supplement the sanitary arrangements of the building a range of latrines was set up in a distant part of the grounds for the use of patients not confined to bed and the staff of orderlies. The latter were lodged in tents erected in the grounds. Beyond this an excellent dispensary and the store-rooms necessary for the working of a general hospital were established, and also a service lift for the conveyance of stores to all four floors, the latter at the extraordinarily modest cost of 310 francs.

A thoroughly efficient hospital was thus obtained in the course of a few days. At the time of my visit a large amount of work had been done there, and to illustrate the thoroughness with which it was performed I may mention that the skiagram of every fracture or case in which a missile was retained was to be found by the side of each patient's bed, and of many of these excellent prints had been made; there were also photographs of several of the recent wounds. In the laboratory I saw cultivations from some of the wounds, and the organism in the blood of a case of enteric then present in the hospital. Much ingenuity had been shown in the devising of splints, especially in the employment of the aluminium bands forming a part of the service equipment.

The cases throughout were doing well, and judging by my own experience no better military hospital on active service could be wished for. I have purposely chosen this hospital for description because it appears to illustrate the initiative required in the installation of a "general hospital" under unusual conditions which have no doubt had to be met with elsewhere, and which are not, I think, fully appreciated by those without experience of active service.

PLYMOUTH INSURANCE COMMITTEE.—Owing to want of funds the Plymouth Insurance Committee has been unable to settle in full the accounts of the local chemists who are dispensing under the National Insurance Act. This has given rise to a considerable amount of dissatisfaction, and last week a deputation waited upon the Members of Parliament for the borough and urged them to use their influence with the Government to get more money provided for the purpose.

EPSOM AND EWELL WAR HOSPITAL.

BY EDMUND OWEN, F.R.C.S. ENG.,
SURGEON TO THE FRENCH HOSPITAL, LONDON.

AT the outbreak of the war thoughtful people at Epsom and Ewell decided to equip a hospital for the reception of wounded soldiers, and they were fortunate enough to acquire for this purpose, through the kindness of the Grand Stand Association, the large new building for the restaurant at the Grand Stand, and they at once set to work to prepare it for the object in view. Shortly after this the medical staff asked me to act as consulting and operating surgeon as circumstances might require. I was given to understand that the patients sent there for treatment would probably be such as would merely need rest after having been dealt with at some other institution, Epsom being rightly regarded as an ideal place for convalescents. The building, having been duly furnished and equipped, was visited by an official from the Royal Army Medical Corps, who was so pleased with the place that he informed the local medical staff that they might, after all, be called upon to receive more important cases than they had been led to expect.

On Thursday, Oct. 15th, the local staff were told that the reception of 31 cases was to be provided for in the course of an hour or so, that the men had just been landed at Dover, and that they were coming *viâ* Guildford. Mr. Nigel Colman and others had motor ambulances waiting at the South-Western Railway station, and many other friends helped with cars and taxis, the station and its approaches being kept clear by drafts from the Universities and Public Schools battalion which is in training at Epsom. The station-master had thoughtfully arranged that the train coming up from Guildford should be emptied of its patients upon the *down* line, so that the wounded could be placed in the ambulances on the side convenient for the Grand Stand, as otherwise they would have to be taken across the line by an awkward subterranean passage or in some other way. Nothing could have been better. But unfortunately some less sympathetic but more highly placed official descended from Waterloo Station and upset the plan, insisting that the stretchers should be carried down the steps, along the subterranean passage and up the stairs on the other side, and he absolutely refused to allow the adoption of the proposed arrangement for the comfort of the soldiers. His interference in the matter caused great discomfort and unhappiness. This, however, seemed to be the only hitch in the evening's work, which had all been very carefully planned out.

At about 8 o'clock P.M. I received an urgent call to Epsom, and was asked to bring instruments with me, as it appeared that some of the men who were even then arriving were evidently in a very bad way.

Notes of Cases.

The first case brought into the improvised theatre was a man with an opening into his abdomen from which a piece of omentum of the size of a small glove was hanging. The wound was foul and suppurating. The parts were cleaned up with tincture of iodine. The omentum was drawn out a little further, tied in two pieces, and cut off, the wound being covered with an iodine pad. No sutures were used.

The next man placed upon the table had a bullet-wound of entrance in the buttock of the size of a small pea, whilst the tissues at the front of the groin, at the exit wound, were very widely blown away, the sartorius and much of the vastus externus being torn across and the skin being widely destroyed. The damage done at the field of exit of the bullet was remarkable and suggestive. The wound was septic.

The third case was one of compound, comminuted fracture of the humerus just below the shoulder-joint. This was one of the worst cases which we had. However, we did our best to try to save the limb, removing many loose fragments of bone and carefully swabbing out every part of the large septic wound with tincture of iodine. It was felt at the time that the probability of amputation being demanded was great, but it was deemed right to give the man the chance. The next day he was comfortable, but on Saturday afternoon, when the wound was dressed under an anæsthetic and again explored, it was unanimously agreed that amputation should be done through the shoulder-joint on the following day—provided the man gave his consent. Amputation through the shoulder-joint was performed on Sunday afternoon last.

Another man had a wound a little above the great trochanter of the left femur; the bullet had comminuted the upper end of the thigh bone and had made its escape through the back of the perineum, where was a lacerated wound discharging pus. The case was one of extreme gravity, but it did not lend itself to active surgical measures. It was impossible even to render the wound aseptic. On Sunday afternoon the man expressed himself as feeling much better. We found him smoking a pipe and reading a magazine, and he is now doing well on a Hodgen's splint.

Amongst other serious cases of bullet wounds was one of compound, comminuted fracture of the external malleolus. On account of cellulitis and extensive suppuration amputation below the knee was performed last Wednesday morning. In a case of injury to the knee it was impossible to be sure whether the accompanying synovitis were septic or not. This man was brought into the theatre on Monday afternoon, an X ray picture having been taken of the knee on the previous evening by Mr. Ede with an apparatus which he had set up in the building. The plate showed with great clearness a bullet on the outer side of the femur, but so far above the ordinary position of the synovial membrane that we all agreed that it must surely be outside the joint. On cutting down to the bullet through the vastus externus and feeling for it with the finger it at once slipped away, and had evidently hidden itself in the joint. On freely opening the synovial membrane and passing the finger under the patella it was found near the inner tuberosity of the tibia, from which place it was no easy matter to fish it out across the joint. The joint contained much fluid and some jelly-like material and a mass of decolourised blood clot. Two pieces of loose cartilage were also found and removed. As it was probable that the interior of the joint was septic it was washed out with some hot chlorinated soda solution and a drainage-tube was inserted.

Among other cases I may mention also one in which the chest was implicated and the adjacent area of the lung was dull and crepitating; one in which the abdomen was involved, and one in which the soft tissues of the loin had been widely undermined. A most unfortunate feature was that every wound was septic. On Sunday afternoon the men were all going on well.

One young soldier was so ill at the railway station that he was expected fatally to collapse before reaching the hospital, and when he was placed in bed he was almost pulseless. He was treated by infusion and by the injection of adrenalin. He had a bullet wound above each great trochanter, and as there was some blood in his urine we feared that his bladder might be damaged. He was so ill, however, that exploration was out of the question; but as he was slightly better in the morning we thought it right to take the risk of placing him under an anæsthetic. On passing a catheter we drew some blood-stained urine, but the bladder held apparently all the sterilised water which we injected. Placing him in the Trendelenburg position we rapidly exposed the front of the bladder without opening the peritoneum, and it was then found that the bullet had traversed the roof of the urethra, and that a leakage of urine was taking place from an opening just behind the triangular ligament. We therefore closed the surface wound, leaving a space above the pubes for drainage. But notwithstanding the adoption of further active measures against collapse the unfortunate lad sank exhausted.

Amongst the 31 cases there were many others of a serious nature which were dealt with by Mr. Andrew McAllister and by the members of the hospital staff, Dr. T. A. Alexander, Mr. T. L. Braidwood, Dr. E. G. C. Daniel, Dr. John Ferguson, Dr. C. A. Ormerod, Dr. W. H. Rayner, Dr. E. N. Reichardt, and Dr. W. Thornely, and myself. We were all kept busy from late in the evening until nearly 4 o'clock in the morning.

What specially struck me was the sublime courage and endurance of these wounded men. There was never a word of complaint or impatience. But soldiers are much alike, I suppose, all the world over. We have, for instance, about 30 wounded Belgians under treatment at the French Hospital in London who are just as uncomplaining and cheerful, and I doubt not that the German soldiers are equally good patients. It is a great thing to be a soldier: he is usually a real *man!*

The Hospital and Staff.

In conclusion, I would like to speak critically of this hospital, which has been established at the Grand Stand. I have never been in wards which are more attractive or satisfactory. The bedding, furniture, and linen are most excellent, and it was pleasant and reassuring to see these wearied soldiers decked out in the flannel garments which most of us know so well by sight, as we have watched them being cut out and made up by our womenfolk at home. I can assure our needle-workers that their labour is of the utmost value. Many of the men fell sound asleep the moment they were put into bed, and one was loth to wake them as their turn came for examination; but it had to be done. One of them said to me, "What a treat to be brought to such a place as this." He was grateful for the thoughtful kindness shown him; soldiers always are delightful people to have as patients.

The hospital is staffed by a resident medical officer, Mr. W. B. Peacock—a gentleman who struck me as being remarkably well suited for the post—a matron and a staff of eight nurses, some willing ambulance ladies, and a squad of four men of the

St. John Ambulance Brigade. These men did the shifting of the patients to and from the operating theatre and helped in the orderly work of the place. They belonged to the Maidenhead division, and if their instructor, Dr. R. E. Whitting, could have seen them carrying on he would have felt himself well repaid for the great pains and care which he has evidently devoted to their instruction. Nothing has shown the value of the work of the Order of St. John in time of peace more clearly than the way in which the services of the members of the brigade have been drawn on since the outbreak of the war; between 5000 and 6000 of them are now engaged in the field or in hospital work as orderlies. Not only is this a valuable help to the medical department of the army, but it is also a clear proof to men and women who have been giving so much of their leisure and thought to the advancement of the Brigade (on what some people may have regarded as sentimental grounds) that the work of the Order has been based upon a foundation which is as solid and useful as it is ancient.

THE CLAIMS OF BRITISH SPAS.

(*Continued from p. 958.*)

IV.—DROITWICH.

THE reputation of Droitwich as a health station is based almost entirely upon its famous brine wells. The confidence in the curative properties of these potent saline waters is such that auxiliary aids to treatment are seldom employed, although they are available. The waters are saturated with salt, and they could not hold a grain more than they do, since the limit of solubility is reached by contact with the rock-salt deposits below. The slightest evaporation of the water leads to the deposit of salt. The specific gravity of the brine is 1·195 and the total salts amount to no less than 317·328 grammes per litre, or about 26 per cent. Amongst salts present are the sulphates of sodium, calcium, and aluminium and chloride of sodium, but these altogether amount to about 7 grammes per litre. The brine is decidedly radio-active. It is important to observe that the salt obtained on evaporation obviously loses its radio-activity in the course of this process, and that therefore the brine of Droitwich cannot be imitated by dissolving any salt obtained by evaporation in water again.

Treatment at Droitwich succeeds mainly by its favourable influence on nutrition, whilst, when necessary, the diet of the patient is carefully regulated. The medical authorities at Droitwich make few and simple claims for the therapeutic uses of the water. They do not set out a wide category of disorders as all receiving relief from brine treatment. But while this is the case, the value of these waters in the treatment of gout, rheumatism, sciatica, the uric acid diathesis, and in completing the recovery process of acute illnesses has been well established.

There are two bathing establishments at Droitwich—the St. Andrew's and the Royal Baths. In 1836 the latter were opened, and since that time a very large number of patients suffering from rheumatism, sciatica, gout, and nervous disorders (insomnia) have sought relief at Droitwich. The baths have now grown to the dimensions of a continental spa; hotel accommodation has been increased and improved, and every effort is put forward to make the place attractive to the visitors. Important extensions were made to the St. Andrew's Brine Baths in 1907. These additions consist of an enlarged entrance hall, lounge, waiting-rooms, and a new series of ladies' baths, all well planned, substantially built, and conducive to the comfort of the patient. There are also two large swimming-baths, one for ladies and the other for gentlemen.

Graduated exercises can be performed with advantage in this natural brine. The buoyancy of the water is so great that the bather can lie on the top as though lying on an air bed. He cannot possibly sink. When lying upon the water the limbs are equally supported in every direction, and the patient can thus perform certain movements which he could not attempt on *terra firma* on account of the pain. These exercises are claimed to have been successfully employed in the treatment of scoliosis and to exercise painful joints, and are thus most useful during the convalescent stage of sciatica and in the after-treatment of fractures and other surgical injuries.

Altogether the accommodation provided includes private hot reclining baths, douche, needle, vapour, deep chair baths, and three commodious and elegant brine swimming baths. There are also special rooms for Aix douche baths, and effervescing baths on the well-known lines of treatment for chronic diseases of the heart at Nauheim.

Social attractions are well looked after; there is a golf course, and the neighbourhood abounds in places of beauty and interest, as, for example, Worcester, Malvern, Tewkesbury, Gloucester, Hereford, Stratford-on-Avon, and Kenilworth.

The Droitwich waters occupy amongst balneological stations a unique place, since no other water is known to possess the same saline strength. It is physically and chemically impossible, in fact, for a water to contain more salt than Droitwich brine, since it is saturated under some pressure in the natural wells beneath. It is about ten times the saline strength of sea water.

(*To be continued.*)

ROYAL ACADEMY OF MEDICINE IN IRELAND.—The following have been elected office-bearers for the ensuing year:—President: Professor Walter G. Smith, M.D. General Secretary: Professor J. Alfred Scott, M.D. Foreign Secretary: Sir John W. Moore, M.D. The sectional presidents will be as follows:—Medicine: Professor J. A. Lindsay, M.D.; Surgery: Professor F. Conway Dwyer, M.D.; Obstetrics: Dr. M. J. Gibson; State Medicine: Dr. T. P. C. Kirkpatrick; Pathology: Dr. J. B. Coleman, C.M.G.; Anatomy and Physiology: Professor E. J. Evatt, M.D.

LECTURES ON INFANT CARE.—To meet the demand for training expressed by many voluntary health workers enrolled since the war for service at local infant welfare centres, &c., the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy, in coöperation with the Association of Infant Consultations and Schools for Mothers and the Women's Imperial Health Association, is holding a course of lectures on infant care in London at the Royal Society of Medicine, 1, Wimpole-street, W., on Mondays, and at the Medical School of Charing Cross Hospital, 62, Chandos-street, W.C., on Thursdays, from Oct. 19th to Dec. 17th, at 5.30 P.M. In addition to the lectures facilities will be provided for gaining practical instruction through attendance at infant consultations, and classes will be held at certain selected centres. An examination will be held at the close of the course and certificates awarded. The fee for each student is 5*s*. Further particulars may be obtained from Miss Halford, secretary, National Association for the Prevention of Infant Mortality, 4, Tavistock-square, London, W.C.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

WE publish this week a first series of results obtained at various stations in the country in regard to the quantity and quality of the deposit collected out of the atmosphere by the standard gauges set up at these places. The tables below give the rainfall for the months ending April 30th and May 31st, 1914, and the amounts found of insoluble matter (tar, soot, dust) and soluble matter (sulphates, ammonia, and chlorine) in the volume collected. It will be seen that the laboratory findings are calculated into metric tons of deposit per square kilometre during the month. One metric ton per square kilometre is equivalent to approximately 9 lb. per acre, or 2·56 English tons per square mile. These comparative figures are well worth studying, inasmuch as they show considerable variations in the degree of atmospheric pollution at different stations. To take one example, Malvern shows for the month of April a total deposit of solid matters of 1·76. These contained no tar at all, and but little carbonaceous matter. In the same period, however, at Liverpool the total solids amounted to 15·97 metric tons, and the tar to 0·36 ton. All through there are most interesting and significant comparisons to be made, and when the series for the year is completed a very valuable and instructive record will be available. The Committee for the Investigation of Atmospheric Pollution may be heartily congratulated on the practical movement they have successfully organised to obtain actual records of the atmospheric pollution which is taking place throughout the country.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION:

Summary of Reports for Month ending April 30th, 1914.

1	2	3	4	5	6	7	8	9	10	11	12
			Metric tons of deposit per square kilometre during month.								
			Insoluble matter.			Soluble matter.			Included in soluble matter.		
Place.	Correspondent.	Rainfall in millimetres.	Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphate as (SO_4).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND—											
Exeter	Mr. H. Lloyd Parry, Town Clerk.	32·30	0·04	2·06	4·71	0·97	1·61	9·38	0·74	0·29	0·02
Kingston-on-Hull	Mr. A. R. Tankard, Public Analyst.	10·25	0·08	2·71	4·76	0·94	2·50	10·99	1·34	0·31	0·03
Liverpool	Dr. E. W. Hope, M.O.H.	22·23	0·36	2·18	8·01	2·40	3·02	15·97	1·93	0·61	0·13
London—											
Embankment Gardens	Mr. J. Ollis, Chief Officer, P.C.D., L.C.C.	15·61	0·27	5·38	6·31	0·72	3·03	15·71	1·40	0·39	0·04
Golden-lane	Dr. W. J. Howarth, M.O.H.	19·27	0·03	1·41	2·24	1·15	2·24	7·06	1·38	0·42	0·07
Meteorological Office	Director, THE LANCET Laboratory.	18·70	0·05	2·43	5·63	1·87	2·61	12·59	1·46	0·98	1·11
Malvern	Mr. W. Osborne Thorp, Engineer and Surveyor.	32·19	0·00	0·14	0·21	0·39	1·03	1·76	0·34	0·14	0·17
Newcastle-on-Tyne	Dr. H. Kerr, M.O.H.	15·31	0·17	4·05	10·55	0·98	2·17	17·92	1·27	0·24	0·04
York	Dr. Edmund M. Smith, M.O.H.	13·23	0·11	2·17	3·26	0·96	1·69	8·19	0·78	0·34	0·52
SCOTLAND—											
Greenock	Mr. James Devine, Sanitary Inspector.	91·70	0·03	1·32	3·13	1·71	3·45	9·64	1·37	0·81	0·07
Leith	Mr. Thomas Bishop, Sanitary Inspector.	24·63	0·08	1·01	3·27	1·53	1·02	6·91	0·79	0·21	0·05
Paisley	Mr. W. W. Kelso, Sanitary Inspector.	75·80	0·08	4·17	6·46	2·42	2·73	15·87	1·67	0·76	0·09

Summary of Reports for Month ending May 31st, 1914.

ENGLAND—											
Birmingham	Dr. J. Robertson, M.O.H.	35·60	0·18	4·79	15·92	1·71	7·26	29·86	2·99	1·57	0·43
Exeter	Mr. H. Lloyd Parry.	41·80	0·05	2·37	3·56	0·79	1·97	8·74	0·77	0·31	0·00
Kingston-on-Hull	Mr. A. R. Tankard.	44·61	0·16	3·86	4·51	2·50	3·39	14·42	1·74	0·52	0·05
Liverpool	Dr. E. W. Hope.	56·14	0·16	4·11	8·96	2·47	4·94	20·64	3·37	0·72	0·22
London—											
Embankment Gardens	Mr. J. Ollis.	21·47	0·61	7·18	6·51	0·86	2·62	17·78	1·09	0·30	0·01
Golden Lane	Dr. W. J. Howarth.	46·74	0·08	3·37	5·72	1·68	3·74	14·59	2·40	0·65	0·18
Meteorological Office	Director, THE LANCET Laboratory.	35·20	0·05	1·57	2·96	0·00	2·11	6·69	1·14	0·82	2·09
Malvern	Mr. W. Osborne Thorpe.	34·76	0·02	0·27	0·41	0·69	1·25	2·69	0·59	0·18	0·02
Newcastle-on-Tyne	Dr. H. Kerr.	29·19	0·12	3·18	5·56	0·93	1·93	11·72	1·37	0·25	0·04
York	Dr. Edmund M. Smith.	33·73	0·02	0·85	3·15	1·08	1·35	6·45	0·91	0·38	0·10
SCOTLAND—											
Greenock	Mr. James Devine.	52·30	0·04	1·33	4·51	1·39	2·25	10·12	1·01	0·22	0·82
Leith	Mr. Thomas Bishop.	48·10	0·49	0·79	2·92	1·19	1·19	5·32	0·98	0·18	0·09
Paisley	Mr. W. W. Kelso.	49·68	0·15	4·53	6·66	1·20	1·99	14·55	0·89	0·35	0·02

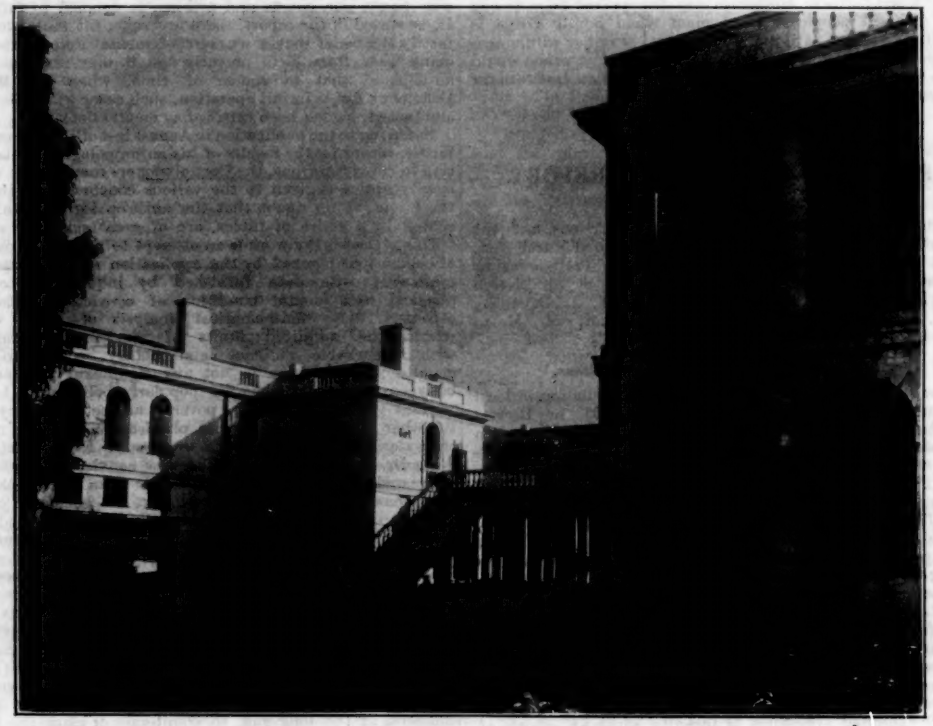
Col. 4 includes all matter insoluble in water but soluble in CS_2. Col. 5 includes all combustible matter insoluble in water and in CS_2. Col. 6 includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) one gramme per sq. metre; (*d*) 1/1000 millimetre of rainfall (see Col. 3).

Similar results obtained in THE LANCET Laboratory in regard to the pollution of the metropolitan atmosphere have already been published in our columns,[1] and the future records of the committee as they come forward from month to month will be issued. We are undertaking ourselves in THE LANCET Laboratory the analysis of the deposit collected at the Meteorological Office in London.

[1] The Sootfall of London, its Amount, Quality, and Effects: An Appeal for Soot-gauge Observations, THE LANCET, Jan. 6th, 1912.

THE SOUTH AFRICAN INSTITUTE FOR MEDICAL RESEARCH.

IT may seem to some an ill-chosen opportunity to forward the claims of the South African Institute for pecuniary support, but in our opinion no better time could have been selected than that in which, on the one hand, the powerful and loyal support of South Africa is being given us in our struggle against Germany, and on the other the need for organised medical research is being brought home to us by military conditions. The South African Institute for Medical Research was established in Johannesburg under the joint control of the Government of the Union of South Africa and the Transvaal Chamber of Mines. The Government contributed the site and has made itself responsible for an annual subsidy of £5000, while the mining industry has provided the building and equipment at a cost of £40,000.



South African Institute for Medical Research.

Hitherto the energies of the Government have been directed towards veterinary research, upon the results of which the progress of South African agriculture largely depends. This useful branch of work has been most liberally supported by the Government, and has been carried on under Sir Arnald Theiler, the Director of Veterinary Research in the Transvaal and the author of many publications on the tropical diseases of domestic stock which have attracted much attention. The support which the Government is extending to medical research is further evidence of the enlightened and progressive spirit now animating the great self-governing subcontinent.

The buildings of the institute which crown the hill to the north of Johannesburg were designed by Mr. Herbert Baker and Mr. G. G. Fleming, the former of whom is one of the architects commissioned to design the new capital of India at Delhi. Sir Almroth Wright when on a visit to Johannesburg gave advice as to the general plan. The further elaboration of the details was entrusted to Dr. W. Watkins-Pitchford, then Government Bacteriologist for the Transvaal. Dr. Watkins-Pitchford, who has now been in Johannesburg for some three or four years, is the director of the institute; he was for ten years Government Pathologist to the Natal Government.

The institute has already published four memoirs, the first of which constitutes a very able study, from the statistical side, of Pneumonia as it affects the Native Mine-labourer. This memoir was reviewed at length in our columns on its appearance. The second and third deal with the Serological Classification of Pneumococci and the Ash of the Silicotic Lung respectively. A fourth publication, which has not yet reached us, is announced, and, like the first, is by Mr. G. D. Maynard, who was secretary of the Government Commission on Miner's Phthisis.

The institute is, unfortunately, not endowed in any way and depends for the carrying on of its work upon the generosity of private individuals, and we can recommend its claims to those of our readers who may be able to bring them to the notice of members of the public. The institute already makes a special appeal to those whose wealth has been drawn directly or indirectly from the gold or diamond mines of South Africa, but having regard to the basis of its establishment it may fairly be said to deserve the support of all. There is no intention of confining its work to industrial or topical diseases; all matters concerning the health of the inhabitants of South Africa will come within its scope. It is hoped, moreover, that, with the general advancement of scientific and technical education in South Africa, facilities may be afforded for teaching modern developments of pathology and bacteriology in association with the work of research. Research will be kept in the foreground as the proper work of the institute, but that the teaching side has not been forgotten is indicated by the provision of a lecture theatre, which is also to be available for meetings of the local medical profession. It is hoped consequently that men of

wealth and liberal minds will endow research fellowships in particular subjects so as to insure a continuous contribution to the study of human disease.

The enterprise is being administered by a joint committee consisting of Government nominees and leading representatives of the mining industry, under the chairmanship of Mr. P. Ross Frames, the managing director of the Premier Diamond Mining Company.

The institute's buildings embody the latest ideas in medical research, and include five wards for the reception of patients. In these wards, which will be nursed from the adjoining Johannesburg General Hospital, the phenomena of disease will be recorded under laboratory conditions and the best methods of treatment ascertained by close observation and comparison.

The Government and the mining administration of South Africa are to be congratulated upon their enlightened enterprise, an enterprise which should not be permitted to languish for want of financial support. The prosecution of medical research is one of the high functions of man, a manifestation of that spirit of humanism which will bear sway when barbaric militarism has disappeared from among the civilised peoples: the moment when South Africa is proving in a very patriotic and practical way her willingness to bear her part in an imperial war on behalf of peace would be a very fitting one to place the South African Institute for Medical Research on a firm financial footing.

PRISONS COMMISSIONERS' REPORT.

THE report of the Commissioners of Prisons and the Directors of Convict Prisons for the year ended March 31st, 1914, has been presented to both Houses of Parliament by command of His Majesty. It is signed by Sir Evelyn Ruggles-Brise, K.C.B. (chairman), Mr. F. J. Dryhurst, C.B., Captain C. F. de L. Kardley-Wilmot, Mr. M. L. Waller, and Sir Herbert Smalley, M.D.

Statistics as to Local and Convict Prisons.

The report states that the daily average population in local prisons was 14,352, in convict prisons 2704, in Borstal institutions 928, in State inebriate retormatories 81, and in private detention prisons 171. As compared with the previous year these figures show a decrease of 1182 in local prisons and 172 in convict prisons. The receptions into prisons during the year numbered 128,686 on summary conviction and 7738 on conviction on indictment—total 136,424. The death-rate in local prisons from natural causes was 0·55 per 1000 prisoners received, the average for the previous 25 years being 0·50 per 1000. The death-rate from natural causes in convict prisons was 7·4 per 1000 of the daily average population, as compared with 3·9 in the preceding year and 6·3 for the past ten years. The number of persons in local prisons found to be insane and certified as such after reception was 140, as compared with 135 last year; and in convict prisons 44, as compared with 48. Of the 140 cases certified in local prisons 100 were found to be insane on reception, and 8 exhibited symptoms of insanity within a month of reception. Many of those who were in prison for some time before the usual symptoms of insanity were observed were known to be of weak intellect or mentally impaired on reception, or to have been previously insane. The number of prisoners who were released from local prisons on medical grounds (exclusive of pregnancy, &c.) was 38, and from convict prisons 2. There were 11 suicides in local prisons during the year and 1 in convict prisons. The number of prisoners formally recognised as being so feeble-minded as to be unfit for the ordinary penal discipline was 843 in local prisons and in convict prisons 108. It is hoped that the passing of the Mental Deficiency Act, which came into operation on April 1st, 1914, will, as soon as the necessary operations can be made by the newly created Board of Control, relieve the prison authority of a great burden and responsibility in dealing with these cases. It is estimated that about 70 per cent. of such cases will satisfy the definition of the Act and will henceforth pass under the control of the body specially appointed to assign the proper treatment necessary in each individual case.

The majority of our prisons are now (the report proceeds) equipped with special cells for prisoners suffering from tuberculous disease. It is satisfactory to note that at Birmingham Prison, where 26 (25 male and 1 female) prisoners were found to be suffering from phthisis on reception, all showed some improvement during their imprisonment in the suitable environment provided, and medical officers generally report favourably on the facilities now given for the special treatment of tuberculous disease.

Habitual Inebriates—Anthropological Investigation.

With regard to the habitual inebriate under State control, of both sexes, it appears from the report of the inspector, Dr. R. W. Branthwaite, that the population at both institutions—Warwick and Aylesbury—for males and females respectively is rapidly decreasing, the daily number under detention at the former being only 19 and that at the latter only 62. Dr. Branthwaite says that "unless some effort is made to secure the passage into law of a consolidating and amending Bill this excellent attempt to institute more rational methods for dealing with habitual inebriates, at any rate with those who haunt our courts and prisons, is doomed to failure." If, as stated in the report, there are sufficient indications to justify the belief that a measure of mental defect exists, in many cases, from birth or early age, it may reasonably be anticipated that in course of time, when the Mental Deficiency Act is in full operation, such cases will have been eliminated, having been certified as mental defects.

Referring to the publication in August last of Dr. C. Goring's report, recording the results of his anthropological investigation in convict prisons, the Commissioners remark that whatever reception is given to the various conclusions arrived at there can be no doubt that the anthropological data, presented in a series of tables, are of great scientific value. "This praiseworthy work is an attempt to present an outline of conclusions reached by the application of the statistical method to the data furnished by inquiry as to the physical and mental condition of convicts in English prisons. Close mathematical analysis of these data, within the admitted limits of the inquiry pursued with remarkable patience and ability, points to the conclusion that there is not any significant relationship between crime and what are popularly believed to be its 'causes'—inherited stigma, poverty, neglect, illiteracy, &c. In other words, there are no physical, mental, or moral characteristics peculiar to the inmates of English prisons. What Dr. Goring insists upon is that conviction of crime is associated with constitutional rather than circumstantial conditions, and, as these are heritable, the genesis of crime must to this extent be influenced by heredity; and the criminal diathesis, revealed by the tendency to crime, is affected by heredity to much the same extent as other physical and mental conditions in man; but this does not mean that a man is predestined to a criminal career by a tendency which he is unable to control. It only means that heritable constitutional conditions have hitherto prevailed in the making of criminals; which is to say, that variation of environment within the restricted limits examined (from the education of the streets to that of public elementary school, reformatory school, &c., for instance) has not been sufficient, in the long run, to counteract or mask the force of inherited proclivity, which nevertheless is itself a force of varying intensity, and one which can be regulated, encouraged, or stultified by training and education and example."

Constitution of the Commission.

The following reference is made to the recent change in the constitution of the Commission by the appointment of Sir Herbert Smalley to be a member of the board: "The growing importance of the medical side of prison administration, the numberless questions that continually arise demanding medical knowledge and experience, led the Secretary of State to the opinion that there should be a strengthening of this Commission by the addition of a medical authority of long and wide experience, and one who, as medical inspector for many years, had become conversant with all questions affecting the mental and physical state of prisoners. Sir H. Smalley now takes his place on the Prisons Board, and will be relieved to a large extent of the duties of general inspection which he has hitherto discharged by the appointment of Mr. O. F. N. Treadwell, formerly medical officer of Parkhurst Prison, to be Assistant Medical Inspector of Prisons."

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned Lieutenants are confirmed in their rank:—Ernest W. Wade, Bernard Woodhouse, William K. Morrison, Edgar Percival, Stanley J. Linzell, and Lewis R. Shore.

The undermentioned to be temporary Lieutenants:—Dated Oct. 5th: Edmund Rupert Derner, Godfrey Martin Huggins, Charles Matheson Kennedy, Charles Dudley Roberts, James Heslop Aikman, Delvine Bell, Edwin Brace Barton, John Smith Knox Boyd, Douglas Morris Borland, Dudley Thomas Birt, Alan Willis Gaye, William Sim Garden, John Hugh Cuthbert Green, Aubrey Goodwin, Stanley Honeyman, Alfred Ernest Hallinan, Thomas Hugh Houston, Robert McCowan Hill, William Christopher Jardine, Courtnay Cooper Keates, James William Littlejohn, David Matthew, William Stretley Martin, Daniel McVicker, Henry Maurice MacKenzie, Fred Wallace Mackenzie, John Tertius Morrison, Hugh London Neil, Ralph Stransham Oldham, William Berwick Ure Patterson, George Rankine, John Symington Stewart, William Robertson Snodgrass, James John Sinclair, Neil Frederick Sinclair, James Taylor, James Herbert Grove-White, and Donald Wainwright.

SUPPLEMENTARY TO REGULAR UNITS OR CORPS.

Lieutenant Philip S. Vickerman is granted seniority as from April 8th.

ROYAL NAVAL VOLUNTEER RESERVE.

A temporary commission has been issued to J. Westwood as Surgeon.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants to be Captains: Paul B. Roth, Laurence M. Routh, James O. Hamilton, Charles A. Bignold, Keith B. MacGlashan, John Adams, Leonard W. O. Taylor, James B. Williamson, Claude Johnson, Gilbert K. Aubrey, Henry H. Brown, and John Fraser.

The undermentioned Lieutenants are confirmed in their rank:—Francis R. H. Mollan and James O'Brien.

The undermentioned Cadets of the Officers Training Corps to be Lieutenants (on probation): Frederick John Henry Tobias Frere and Roderic Duncan Cameron.

The undermentioned to be Lieutenants (on probation): Colin Grant, Lionel Arthur Lewis, and Neale Leo Lochrane.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st East Anglian Field Ambulance: George James Leask to be Quartermaster, with the honorary rank of Lieutenant. Harry Harris to be Transport Officer, with the honorary rank of Lieutenant.

3rd East Anglian Field Ambulance: Frederick Claude Kempson to be Lieutenant.

1st Highland Field Ambulance: The undermentioned to be Lieutenants: Charles Alexander Whyte and George Davidson. James Dickie to be Quartermaster, with the honorary rank of Lieutenant.

3rd Highland Field Ambulance: John Morrison Milne to be Lieutenant.

1st Home Counties Field Ambulance: William Brooks Keith to be Lieutenant.

1st West Lancashire Field Ambulance: The undermentioned Captains to be Majors: Creighton H. Lindsay and Adam P. H. Simpson.

3rd West Lancashire Field Ambulance: The undermentioned Captains to be Majors: Augustus A. W. Merrick and Richard Coffey.

1st Northumbrian Field Ambulance: Roger Errington to be Lieutenant.

2nd Northumbrian Field Ambulance: Major Duncan Alexander Cameron to be Lieutenant-Colonel. Captain Duncan Vercoe Haig and Captain David Leonard Fisher to be Majors. Valentine Hutchinson Wardle (late Cadet, Durham University Contingent, Senior Division, Officers Training Corps) to be Lieutenant. Angus Ferens to be Transport Officer, with the honorary rank of Lieutenant.

1st London (City of London) General Hospital: Arnold Walmsley Stott to be Lieutenant. The undermentioned to be Lieutenants (dated Sept. 5th): Alfred Bernard Pavey Smith, Lionel Gordon Crossman, and Martin Wright Kidman Bird.

2nd London General Hospital: The undermentioned to be Lieutenants: Cyril Eaton Petley, Leonard Milton, Herbert Sharpe, and Hubert John Burgess Fry.

3rd London General Hospital: The undermentioned to be Lieutenants: George Harvey Duder Webb, John St. Andrew Titmas, Harry Audley Lucas, and Edward Smeed.

4th London General Hospital: Major Stanley Boyd to be Lieutenant-Colonel.

5th Southern General Hospital: The announcement notifying the resignations of Lieutenant-Colonel and Honorary Surgeon-Colonel George G. Sparrow and Lieutenant-Colonel John R. S. Robertson is cancelled.

South Wales Mounted Brigade Field Ambulance: The undermentioned to be Lieutenants: Guy Starkey Thompson, Archibald John Campbell, and Ernest Littleton Sandiland.

3rd Welsh Field Ambulance: William Jones Richards to be Lieutenant.

3rd Wessex Field Ambulance: Captain Elliott B. Bird to be Major.

2nd Eastern General Hospital: Major James A. Rooth to be Lieutenant-Colonel. Lieutenant Hugh M. Galt, from Attached to Units other than Medical Units, to be Captain.

Supernumerary for Service with the Officers Training Corps: Andrew Daniel Clinch to be Lieutenant, for service with the Dublin University Contingent, Senior Division, Officers Training Corps.

Attached to Units other than Medical Units.—Major William Kirman Pauli, from the Territorial Force Reserve, to be Major. Major Herman Stedman resigns his commission, and is granted permission to retain his rank and wear the prescribed uniform. Captain Charles Arthur Morris, C.V.O., to be Major. Supernumerary Captain Matthew B. Ray is absorbed into the establishment. Lieutenant Angus McNab and Lieutenant Alan C. Ransford to be Captains. Thomas Vicars Oldham, James Gerald Fayrer Hosken, and Edward Lister Martin to be Lieutenants. Lieutenant Norman M. Fergusson to be Captain. Lieutenant Robert W. Simpson to be Captain. John Forbes Ward to be Lieutenant. John James Scanlan (late Surgeon-Captain 35th Imperial Yeomanry) to be Lieutenant.

NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund, held on Oct. 13th, Surgeon-General Sir Arthur W. May, K.C.B., in the chair, the sum of £40 was distributed among the several applicants.

DEATHS IN THE SERVICES.

Lieutenant-Colonel Herbert Wilson Pilgrim, recently, at Brighton, aged 56. He joined the Indian Medical Service in 1886, reaching the rank of lieutenant-colonel in 1906. In 1892 he was appointed resident surgeon at the Presidency General Hospital, Calcutta, and in 1898 surgeon-superintendent.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 97 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 8052 births and 4653 deaths were registered during the week ended Saturday, Oct. 17th. The annual rate of mortality in these towns, which in the three preceding weeks had been 15·7, 14·3, and 13·9 per 1000 of their aggregate population, estimated at 18,120,059 persons at the middle of this year, further declined to 13·4 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 13·2, against a corresponding rate of 13·3 per 1000 in London. Among the several towns the death-rate last week ranged from 5·9 in Ealing, 6·2 in Southend-on-Sea, 6·3 in Ilford, 6·4 in Hornsey, 6·9 in Lincoln, and 7·3 in Walthamstow and in Bolton, to 18·2 in Liverpool and in Wigan, 18·4 in Barnsley, 19·2 in Rotherham, 19·7 in Gateshead, 20·6 in Middlesbrough, and 23·1 in Dewsbury.

The 4653 deaths from all causes were 194 fewer than the number in the previous week, and included 529 which were referred to the principal epidemic diseases, against numbers declining from 1437 to 710 in the four preceding weeks. Of these 529 deaths, 322 resulted from infantile diarrhœal diseases, 67 from measles, 59 from diphtheria, 38 from whooping-cough, 29 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·5, against 2·0 per 1000 in the previous week. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had declined from 1223 to 485 in the four preceding weeks, further fell to 322, and included 91 in London, 32 in Liverpool, 19 in Birmingham, 14 in Manchester, and 7 in Middlesbrough. The deaths referred to measles, which had been 50, 61, and 73 in the three preceding weeks, fell to 67 last week, of which 21 were registered in London, 9 in Liverpool, 6 in Birkenhead, 5 in Birmingham, and 3 each in Manchester, Wigan, and Oldham. The fatal cases of diphtheria, which had been 56, 63, and 57 in the three preceding weeks, were 59 last week, of which 16 occurred in London, 5 in Birmingham, 4 in Portsmouth, and 3 in Manchester. The deaths attributed to whooping-cough, which had been 40, 50, and 47 in the three preceding weeks, further declined to 38 last week, and included 13 in London, 3 in Rhondda, and 2 in Acton. The deaths referred to scarlet fever, which had been 23, 29, and 31 in the three

preceding weeks, fell to 29 last week, of which 6 were recorded in London, 3 each in Manchester and Newcastle-on-Tyne, and 2 each in Southampton, Salford, and Sheffield. The fatal cases of enteric fever, which had been 16, 23, and 17 in the three preceding weeks, fell to 14 last week, of which 2 each occurred in London and Liverpool.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily increased from 3071 to 4363 in the eight preceding weeks, had further risen to 4473 on Saturday last; 650 new cases were admitted during the week, against 674, 640, and 670 in the three preceding weeks. These hospitals also contained on Saturday last 1443 cases of diphtheria, 71 of enteric fever, 34 of whooping-cough, and 30 of measles, but not one of small-pox. The 1205 deaths from all causes in London were 13 in excess of the number in the previous week, and corresponded to an annual rate of 13·9 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 110 to 175 in the four preceding weeks, further rose to 178 in the week under notice, and were 2 above the number in the corresponding week of last year.

Of the 4653 deaths from all causes in the 97 towns, 182 resulted from various forms of violence, and 357 were the subject of coroners' inquests, while 1424 occurred in public institutions. The causes of 26, or 0·6 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Leeds, Bristol, Hull, Newcastle-on-Tyne, and in 58 other smaller towns. Of the 26 uncertified causes of death, 5 were registered in Birmingham, 3 in Gateshead, and 2 in Smethwick.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,293,200 persons at the middle of this year, 1128 births and 646 deaths were registered during the week ended Saturday, Oct. 17th. The annual rate of mortality in these towns, which had been 16·3, 15·6, and 15·9 per 1000 in the three preceding weeks, declined to 14·7 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 14·4, against 13·2 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 4·1 in Hamilton, 8·5 in Coatbridge, and 8·8 in Kilmarnock, to 15·3 in Glasgow, 16·9 in Edinburgh and in Dundee, and 18·7 in Greenock.

The 646 deaths from all causes were 52 fewer than the number in the previous week, and included 81 which were referred to the principal epidemic diseases, against 92 and 96 in the two preceding weeks. Of these 81 deaths, 29 resulted from infantile diarrhœal diseases, 19 from diphtheria, 16 from scarlet fever, 10 from whooping-cough, 6 from enteric fever, and 1 from measles, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·8, against 1·5 per 1000 in the 97 English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 87, 52, and 54 in the three preceding weeks, declined to 29, of which 13 were registered in Glasgow and 3 each in Edinburgh, Dundee, and Paisley. The deaths referred to diphtheria, which had increased from 4 to 14 in the four preceding weeks, further rose to 19 last week, and comprised 8 in Edinburgh, 5 in Glasgow, 5 in Aberdeen, and 1 in Leith. The fatal cases of scarlet fever, which had been 12, 12, and 13 in the three preceding weeks, rose to 16 last week, and included 9 in Glasgow, 3 in Paisley, 2 in Edinburgh, and 2 in Aberdeen. The deaths attributed to whooping-cough, which had been 13, 13, and 8 in the three preceding weeks, rose to 10 last week, of which 8 were recorded in Glasgow. The deaths referred to enteric fever, which had been 4, 4, and 6 in the three preceding weeks, were again 6 last week, and comprised 4 in Glasgow and 2 in Edinburgh. The fatal case of measles occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had increased from 62 to 84 in the four preceding weeks, further rose to 89 in the week under notice; 29 deaths resulted from different forms of violence, against 27 and 28 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,205,280 persons at the middle of this year, 546 births and 375 deaths were registered during the week ended Saturday, Oct. 17th. The annual rate of mortality in these towns, which had declined from 19·9 to 15·4 per 1000 in the four preceding weeks, rose to 16·2 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 16·9, against corresponding rates of 13·2 and 14·4 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 17·0 in Dublin (against 13·9 in London and 15·3 in Glasgow), 17·3 in Belfast, 19·0 in Cork, 10·1 in Londonderry, 17·6 in Limerick, and 17·1 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 12·8 per 1000.

The 375 deaths from all causes were 20 in excess of the number in the previous week, and included 57 which were referred to the principal epidemic diseases, against 53 in each of the two preceding weeks. Of these 57 deaths, 33 resulted from infantile diarrhœal diseases, 7 from measles, 7 from scarlet fever, 4 from diphtheria, 3 from whooping-cough, and 3 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·5, against corresponding rates of 1·5 and 1·8 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had declined from 74 to 34 in the four preceding weeks, were 33 last week, of which 12 were recorded in Belfast, 10 in Dublin, 5 in Cork, and 3 in Limerick. The 7 deaths referred to measles were registered in Belfast, and were 3 in excess of the average in the four preceding weeks. The fatal cases of scarlet fever, which had been 2, 2, and 4 in the three preceding weeks, further rose to 7 last week, and included 3 in Belfast and 2 in Waterford. The 4 deaths attributed to diphtheria, of which 2 occurred in Dublin, were double the average in the four preceding weeks. The 3 fatal cases of enteric fever were registered in Dublin, and those of whooping-cough in Belfast.

The deaths referred to diseases of the respiratory system, which had been 56, 58, and 56 in the three preceding weeks, rose to 71 in the week under notice. Of the 375 deaths from all causes, 102, or 27 per cent., occurred in public institutions, and 5 resulted from different forms of violence. The causes of 8, or 2·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 97 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

VITAL STATISTICS OF LONDON DURING SEPTEMBER, 1914.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 11·6 per 1000 of the population, estimated at 4,516,612 persons in the middle of the year; in the three preceding months the rates were 7·6, 7·8, and 7·5 per 1000 respectively. The lowest rates last month were recorded in Chelsea, St. Marylebone, Hampstead, Hackney, Holborn, and Wandsworth; and the highest rates in Fulham, Islington, Bethnal Green, Stepney, Poplar, and Deptford. Scarlet fever was much more prevalent than it had been in any preceding month of this year; the greatest proportional prevalence of this disease last month was recorded in Hammersmith, Islington, Stoke Newington, the City of London, Bethnal Green, and Stepney. The Metropolitan Asylums Hospitals contained 4157 scarlet fever patients at the end of last month, against 3045, 3113, and 3199 at the end of the three preceding months; the weekly admissions averaged 598, against 396, 410, and 414 in the three preceding months. Diphtheria also was excessively prevalent as compared with other recent months; this disease was proportionally most prevalent last month in Bethnal Green, Stepney, Poplar, Deptford, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1080, 1042, and 1030 at the end of the three preceding months, had risen again to 1296; the weekly admissions averaged 188, against 131 and 128 in the two preceding months. Enteric fever was proportionally more prevalent than it had been in any month since February; among the several metropolitan boroughs this disease was proportionally most prevalent in Chelsea, the City of Westminster, St. Marylebone, Holborn, Greenwich, and Woolwich. There were 57 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 40, 36, and 39 at the end of the three preceding months; the weekly admissions averaged 11, against 8, 6, and 7 in the three preceding months. Erysipelas was proportionally most prevalent in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, Deptford, and Greenwich. The 41 cases of puerperal fever notified during the month included 5 in Islington, 4 in Fulham, 3 in St. Pancras, 3 in Southwark, and 3 in Camberwell. The 10 cases of cerebro-spinal meningitis included 2 in Islington and 2 in Stepney; and the 31 cases of poliomyelitis included 12 in Stepney, 5 in Poplar, 3 in Hackney, and 2 each in Southwark, Lambeth, and Camberwell.

The mortality statistics relate to the deaths of persons

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING SEPTEMBER, 1914.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.								Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,516,612	—	3259	1049	—	88	2	41	538	10	31	18	11·6	—	115	36	72	79	15	1342	1659	3·8	6703	15·5
West Districts.																								
Paddington	142,055	—	90	37	—	1	—	2	10	—	1	141	10·4	—	1	—	—	6	1	31	39	2·9	183	13·3
Kensington	170,817	—	138	17	—	4	—	1	20	—	—	180	11·0	—	2	3	—	1	—	22	28	1·7	229	13·9
Hammersmith	124,750	—	106	18	—	1	—	—	13	—	—	138	11·5	—	2	1	—	2	—	29	34	2·8	150	12·4
Fulham	158,849	—	128	34	—	4	1	4	12	1	—	184	12·1	—	—	4	2	3	—	56	65	4·3	222	15·1
Chelsea	63,791	—	31	5	—	5	—	1	6	—	—	48	7·8	—	—	2	1	—	—	9	12	2·0	83	12·9
City of Westminster	152,346	—	114	31	—	5	—	1	18	—	—	169	11·6	—	—	2	1	1	—	12	16	1·1	161	11·6
North Districts.																								
St. Marylebone	112,892	—	46	28	—	4	—	—	9	—	—	87	8·0	—	1	1	1	1	—	17	21	1·9	145	13·7
Hampstead	86,731	—	35	20	—	1	—	1	3	—	—	60	7·2	—	—	—	2	—	—	3	5	0·6	76	9·6
St. Pancras	212,497	—	131	48	—	2	—	3	22	—	1	207	10·2	—	7	2	5	1	1	41	57	2·8	318	15·6
Islington	324,764	—	291	79	—	4	—	5	43	2	1	425	13·6	—	15	1	5	7	1	102	131	4·2	519	16·3
Stoke Newington	50,454	—	46	6	—	—	—	—	3	—	—	55	11·4	—	—	—	—	1	—	9	10	2·1	70	13·8
Hackney	223,724	—	109	40	—	6	—	1	27	1	3	187	8·7	—	4	2	5	5	1	43	60	2·8	295	13·9
Central Districts.																								
Holborn	45,861	—	16	12	—	4	—	1	3	—	—	36	8·2	—	1	—	—	—	—	9	10	2·3	75	17·2
Finsbury	83,212	—	69	11	—	—	—	1	13	1	—	95	11·9	—	9	—	—	3	—	41	53	6·6	177	21·9
City of London	17,129	—	15	1	—	—	—	—	2	—	—	18	11·0	—	—	—	—	—	—	—	—	—	19	12·1
East Districts.																								
Shoreditch	108,869	—	56	23	—	3	—	1	19	—	—	102	9·8	—	11	—	—	4	1	55	71	6·8	261	25·8
Bethnal Green	127,662	—	114	57	—	4	—	2	25	1	1	204	16·7	—	6	—	1	3	1	72	83	6·8	226	19·2
Stepney	273,265	—	375	134	—	7	—	1	56	2	12	587	22·4	—	16	6	5	7	2	117	153	5·8	478	19·0
Poplar	160,222	—	103	58	—	4	—	2	24	1	5	197	12·8	—	6	—	4	2	2	81	95	6·2	325	21·0
South Districts.																								
Southwark	186,941	—	143	33	—	3	—	3	25	—	2	209	11·7	—	16	1	3	5	—	95	120	6·7	368	20·6
Bermondsey	124,213	—	64	22	—	1	—	1	25	—	—	113	9·5	—	1	—	3	—	—	74	78	6·5	239	20·1
Lambeth	296,724	—	217	70	—	5	1	1	27	—	2	323	11·4	—	1	3	13	3	1	97	118	4·1	459	15·8
Battersea	167,338	—	138	17	—	4	—	2	15	—	—	176	11·0	—	7	1	1	4	1	57	71	4·4	222	13·9
Wandsworth	338,998	—	153	76	—	3	—	1	25	—	—	258	7·9	—	3	1	6	8	1	63	82	2·5	380	11·8
Camberwell	262,020	—	182	44	—	2	—	3	29	—	2	262	10·4	—	4	2	4	10	—	75	95	3·8	373	14·6
Deptford	109,182	—	91	30	—	—	—	1	27	—	—	149	14·2	—	—	1	3	—	1	51	56	5·3	168	15·8
Greenwich	96,037	—	60	24	—	4	—	1	15	1	—	105	11·4	—	1	—	2	1	—	31	35	3·8	154	16·4
Lewisham...	172,433	—	108	39	—	3	—	1	12	—	1	164	9·9	—	—	2	1	1	1	34	39	2·4	165	9·8
Woolwich...	122,836	—	90	35	—	4	—	—	10	—	—	139	11·8	—	1	1	4	—	—	16	22	1·9	163	14·1
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the five weeks ending Oct. 3rd the deaths of 6703 London residents were registered, equal to an annual rate of 15·5 per 1000; in the three preceding months the rates had been 12·6, 11·3, and 12·6 per 1000 respectively. The death-rates last month ranged from 9·6 in Hampstead, 9·8 in Lewisham, 11·6 in the City of Westminster, 11·8 in Wandsworth, 12·1 in the City of London, and 12·4 in Hammersmith, to 19·0 in Stepney, 19·2 in Bethnal Green, 20·1 in Bermondsey, 20·6 in Southwark, 21·0 in Poplar, 21·9 in Finsbury, and 25·8 in Shoreditch. The 6703 deaths from all causes included 1659 which were referred to the principal infectious diseases; of these, 115 resulted from measles, 36 from scarlet fever, 72 from diphtheria, 79 from whooping-cough, 15 from enteric fever, and 1342 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Kensington, the City of Westminster, St. Marylebone, Hampstead, and Woolwich; and the highest rates in Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey. The 115 fatal cases of measles were 59 in excess of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Islington, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Battersea. The 36 cases of scarlet fever were 20 above the average number; the greatest proportional mortality from this disease was recorded in Kensington, Fulham, Chelsea, Stepney, and Lambeth. The 72 deaths from diphtheria exceeded the average by 29, the greatest proportional mortality being recorded in St. Pancras, Hackney, Poplar, Bermondsey, Lambeth, Deptford, and Woolwich. The 79 fatal cases of whooping-cough were 15 above the corrected average number; this disease was proportionally most fatal in Paddington, Finsbury, Shoreditch, Stepney, Southwark, and Camberwell. The 15 deaths from enteric fever were 4 below the corrected average, and included 2 in Stepney and 2 in Poplar. The mortality from diarrhœa and enteritis among children under 2 years of age was proportionally greatest in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was 60·1 per cent. above the average.

DONATIONS AND BEQUESTS.—By will the late Miss Margaret Harker Smith, of Holmbrook, Tunbridge Wells, Kent, has left £10,000 to the Homœopathic Hospital, Tunbridge Wells, £6000 to the University College Hospital for the Cancer Research Fund, and £5000 to the New Hospital for Women, London.—The late Mr. John Sykes, of Huddersfield, has bequeathed £2000 to the Huddersfield Royal Infirmary.—The Leicester Infirmary will receive £500 under a bequest of the late Mr. Alfred Green.

A POINT AS TO MILK ADULTERATION.—In Scotland Sheriff Shennan gave judgment recently at Hamilton on a point arising out of milk adulteration. It was proved by the evidence of inspectors who were eye-witnesses that some new milk was in fact adulterated by being poured into cans in which a certain quantity of skimmed milk had already been placed. The milk thus mixed was then purchased by the inspectors as a sample of "sweet milk" from the dealer on whose premises the mixing took place. For the defence it was contended that as the admixture of skimmed milk had not lowered the proportion of milk fat in the article as sold below the 3 per cent. standard fixed as a minimum by the Board of Agriculture there was no offence, and that as the inspectors had seen the mixing take place they had notice of it. Sheriff Shennan convicted the dealer, holding that to diminish the proportion of milk fat in the milk by 15 per cent. was to affect the milk injuriously and injure the purchaser, and that the Food and Drugs Act was not meant to legalise the thinning down of rich milk to the minimum. The purchaser was entitled to notice if any such alteration took place, and the fact that the inspectors knew of it did not absolve the seller from the duty to give such notice. He inflicted a fine of £5.

Correspondence.

"Audi alteram partem."

THE NURSING OF THE WOUNDED.

To the Editor of THE LANCET.

SIR,—It has been brought to the notice of the committee of the British Red Cross Society that doctors in various parts of the country are complaining that wounded soldiers are, as they allege, being nursed by members of Voluntary Aid Detachments, who are not fully trained and certificated nurses.

On behalf of this society I desire to point out that no offer of hospital accommodation which has been submitted to us, and has been approved of by the military authorities, is ever accepted unless fully trained and certificated nurses are in charge. In these hospitals the services of Voluntary Aid Detachments are utilised as probationers, cooks, and in other general ways.

If hospitals are started and utilised by the military authorities without reference to this society the doctor who is asked to take medical charge should, if he finds lack of skilled nurses, apply to the authority responsible for starting such a hospital.

I may mention that we have upon our books the names of some 1500 trained and fully certificated nurses whose services could be called upon at any time in case of need and without expense to the hospitals for which they are required.

I am, Sir, yours faithfully,

ARTHUR STANLEY,
Chairman of the Executive Committee.

83, Pall Mall, London, S.W., Oct. 19th, 1914.

THE MEDICAL REGISTER.

To the Editor of THE LANCET.

SIR,—May I once more ask you for your valuable assistance in reminding members of the profession that unless their names appear in the Medical Register they are not "legally qualified medical practitioners" (Medical Act, 1858, Section 34), and that the duty of notifying changes of address rests with them.

No person can "hold any appointment as a physician, surgeon, or other medical officer either in the military or naval service or in emigrant or other vessels, or in any hospital, infirmary, dispensary, or lying-in hospital, not supported wholly by voluntary contributions, or in any lunatic asylum, gaol, penitentiary, house of correction, house of industry, parochial or union workhouse or poor-house, parish union, or other public establishment, body, or institution, or to any friendly or other society for affording mutual relief in sickness, infirmity, or old age, or as a medical officer of health, unless he be registered" (Section 36); and "no certificate required by any Act now in force, or that may hereafter be passed, from any physician, surgeon, licentiate in medicine and surgery, or other medical practitioner, shall be valid unless the person signing the same be registered" (Section 37).

The Medical Register is the only official publication, and should not be confused with any of the various directories which issue circulars annually.

No one who is not familiar with the work of this office would believe the amount of trouble which is taken to keep in touch with practitioners, and to find them when touch has been lost; but unless we are assisted by members of the profession ourselves our efforts are often fruitless. In consequence of cases which have recently occurred it

becomes increasingly important every year that the registrar should carry out the duty laid upon him under Section 14 of removing from the Register the names of practitioners with whom he cannot communicate. It is done with reluctance, but only by this means can the public and the profession be protected against impostors. No doubt cases of hardship do sometimes arise in consequence of this removal of names, but every possible source of information is made use of to save practitioners from the results of their own forgetfulness, and if they are inconvenienced by finding that their names are off the Register the blame does not rest with this office.

Perhaps I may add that by a recent regulation practitioners possessing medical and dental qualifications, if already on the Medical Register, may register in the Dentists Register (or *vice versâ*) for a reduced fee of £2 1s. instead of £5 1s. I should also like to take the opportunity of drawing attention to the following resolution adopted by the Council on Nov. 30th, 1911, and re-drafted on June 1st, 1914. It cannot be too strongly urged upon practitioners that in giving certificates they are recognised by law as members of a trusted profession, and that it behoves them to exercise the greatest possible care in the matter:—

CERTIFICATES, NOTIFICATIONS, REPORTS, ETC.

Registered practitioners are in certain cases bound by law to give, or may be from time to time called upon or requested to give, certificates, notifications, reports, and other documents of a kindred character, signed by them in their professional capacity, for subsequent use either in Courts of Justice or for administrative purposes. Such documents include, among others, certificates, notifications, reports, &c.: (*a*) Under the Statutes relating to births, deaths, or disposal of the dead; (*b*) under the Acts relating to lunacy and mental deficiency and the rules made thereunder; (*c*) under the Vaccination Acts and the Local Government Board Orders made thereunder; (*d*) under the Factory Acts and the Home Office Regulations made thereunder; (*e*) under the Education Acts; (*f*) under the Public Health Acts and the Local Government Board Orders made thereunder; (*g*) under the Workmen's Compensation Acts; (*h*) under the Acts and the Local Government Board Orders relating to the notification of infectious diseases; (*i*) under the National Insurance Acts and the regulations made thereunder; (*j*) under the Old Age Pensions Acts and the Treasury Regulations made thereunder; (*k*) under the Merchant Shipping Acts; (*l*) in connexion with sick benefit, insurance, and Friendly Societies; (*m*) for procuring the issue of Foreign Office passports; (*n*) for excusing attendance in courts of justice, in the public services, in public offices, or in ordinary employments; (*o*) in connexion with naval and military matters.

Any registered practitioner who shall be shown to have signed or given under his name and authority any such certificate, notification, report, or document of a kindred character, which is untrue, misleading, or improper, *whether relating to the several matters above specified or otherwise*, is liable to have his name erased from the Register.

I am, Sir, yours faithfully,

A. J. COCKINGTON,
Acting Registrar.

General Council of Medical Education and Registration of the United Kingdom, Oxford-street, London, W., Oct. 15th, 1914.

MULTIPLE ROUND-CELLED SARCOMA.

To the Editor of THE LANCET.

SIR,—Will you allow me to draw the attention of your readers to the case of multiple round-celled sarcoma, so clearly reported by Mr. C. N. Slaney, of Parkhurst Convict Prison, in to-day's issue of THE LANCET. I had opportunities of seeing the patient several times with Mr. Slaney and with Mr. O. F. N. Treadwell (then senior medical officer at the prison), and, deeming the case to be of very exceptional interest and rarity, I subsequently showed Mr. Slaney's notes of the clinical history and the necropsy to some expert pathologists, including Dr. R. G. Hebb, who considered them of importance as demonstrating a very rare example of this particular form of growth. I am informed that specimens from the case, which at Mr. Treadwell's request were kindly examined by Mr. Shattock and Mr. Dudgeon, will be preserved in the museum of St. Thomas's Hospital.

I am, Sir, yours faithfully,

London, Oct. 17th, 1914. H. BRYAN DONKIN.

IMPERFECTIONS IN THE CUMBERLAND INFIRMARY.

To the Editor of THE LANCET.

SIR,—Mr. H. A. Lediard's letter in THE LANCET of Oct. 17th carries this matter no further. My report is one of some hundreds which are to be republished collectively, and each faithfully records the condition of each hospital as I found it when compared with the standard of an up-to-date modern hospital.

The letter contains innuendoes which relate to matters of which I am without information, and so an apology is called for to myself. Also certain statements which exhibit a surprising disregard of official facts open to the governors—to wit, the annual report for 1914 states on a slip attached to its cover that "there is accommodation for 150 in-patients." 140 of these beds were reported to be available. I was informed that the small room provided for the laundry-maids was used by 11 not 4 persons as stated by Mr. Lediard. A clinical room is an essential part of the ward unit of every up-to-date hospital where the treatment and medical work are modern and efficient. Every properly organised voluntary hospital has a mortuary chapel or view room so that reverence for the dead and due consideration for the living may always be secured.

Mr. Lediard's letter confirms me in the opinion that an independent inquiry in the form I suggested is desirable if the governors wish the administration and efficiency of the Cumberland Infirmary to be brought to the standard of a modern hospital. Each city has the hospital it deserves. Whether its standard of efficiency is high or low rests with the citizens.

I am, Sir, yours faithfully,

HENRY C. BURDETT.

Porchester-square, W., Oct. 19th, 1914.

THE TREATMENT OF TETANUS.

To the Editor of THE LANCET.

SIR,—Anything which may be of use to our wounded needs no apology; therefore I wish to repeat some remarks I made in the *British Medical Journal* of Nov. 5th, 1910.

In the ordinary way tetanus is such a rare disease that it only occupies a small part of one's thoughts. This is not the case now. Tetanus kills partly by the direct action of the toxin and partly by the exhausting effect of the convulsions. By the trismus, and dread that taking food will bring on a convulsion, starvation is added to the horrors of the disease, and sleep is prevented by the painful muscular contractions. In treating the disease when it is manifest there are therefore the following indications: 1. To prevent further absorption of toxin by the removal of its source as far as possible. 2. To neutralise the toxin present.

3. To relax the muscles and prevent the tetanic spasms so that the patient will escape the exhaustion and be able to take food and to sleep. Consequently he will be spared much suffering and be in the best position to fight the disease. Of the first two indications the necessity for removing every scrap of necrotic tissue or blood clot, the provision of the freest drainage, the great value of the prophylactic dose of antitetanus serum after suspicious wounds, and the necessity for large doses to produce effect when the disease is established, are too well known to need more than passing mention. But the use of chloretone to meet the third indication does not seem as well known as it deserves.

McClintock and Hutchins undertook an experimental study of the various drugs used for this purpose, and were convinced that chloretone was the best and least poisonous substance hitherto employed. Hutchins published six cases treated with chloretone with four recoveries. The only case I have so treated was a severe one; the beneficial effects of the drug were immediate and striking; trismus was almost abolished and convulsions completely prevented, and the patient recovered. These cases seem more than to warrant a further trial of chloretone. The method of using chloretone is as follows: 30 to 40 grains of chloretone in olive oil are given per rectum; in one or two hours there should be an improvement in the muscular symptoms. When the effect passes off the dose is repeated. Our man had an average of 80 grains a day for five days. Chloretone poisoning is by respiratory failure, so this must be looked out for. Its use is in no way to supersede antitoxin or surgical measures, but to act as a very useful ally. I am, Sir, yours faithfully,

Guildford, Oct. 10th, 1914. ERIC W. SHEAF.

IN THE TRAIL OF WAR.

To the Editor of THE LANCET.

SIR,—The Local Government Board has issued a timely warning to medical officers of health as to watching during the period of war for the occurrence of typhus, enteric, and small-pox. (THE LANCET, Oct. 17th, 1914, p. 951.) In a war of long duration, having regard to present conditions in the eastern sphere of operations, to this list, later on, may perhaps be added cholera. In the meantime antityphoid vaccine is being energetically prepared for the troops; but, so far, no information is available to the public that special precautions are being made to have ready a stock of anti-small-pox animal vaccine both for the troops and the civil population (*plus* refugees) in excess of normal demands. Its production requires time and the employment of calves within particular age limits, and it might be when small-pox appears bovines generally would not be so readily procurable as at present. It would, therefore, seem reasonable to ice-store a reserve for prompt action.

At the risk of being crushed by the cry of "there is nothing like leather," I suggest that in the favouring of duration of vitality without the aid of ice, meeting conditions of rough transport and of use of variable quantities for scattered groups of men, lanolinated vaccine in collapsible tin tubes is more suitable than either glycerinised or dried vaccine. As an instance of its convenience for rapid work I may state that during a small-pox scare in 1891, at Bangalore, by arranging that the men with already cleansed arms marched past me, with the aid of three assistants to hand sterilised instruments, &c., I vaccinated 1000 British and Indian troops in one day. I am, Sir, yours faithfully,

Hatch End, Middlesex, Oct. 14th, 1914. W. G. KING, Colonel, I.M.S. (retired).

PREVENTION AND TREATMENT OF CHAFES BY BOOTS.

To the Editor of THE LANCET.

SIR,—For the prevention of sore feet during the march I can strongly recommend from personal experience soaking the uppers of the boots with castor oil and pouring a little of this oil on the feet, especially between the toes, and then putting on thick socks and the soaked boots.

When abrasions appear between the toes, wrapping a small piece of cotton or linen soaked in castor oil round each toe entirely removes the pain of a slight chafe and enables the sufferer to resume his walk with comfort. Ordinary hot drawn engine-room castor oil is just as efficacious as cold drawn for application to the feet and boots, and is of course much cheaper.

The great importance of preventing or mitigating the sufferings from boot chafe at the present time is my sole excuse for trespassing on your valuable space. I am, Sir, yours faithfully,

Dacca, Sept. 16th, 1914. A. R. S. ANDERSON, M.B. Cantab., Lieutenant-Colonel, I.M.S.

WANTED, A DIAGNOSIS.

To the Editor of THE LANCET.

SIR,—I should be very grateful if any of your readers could give me any suggestions regarding the nature of the two following cases. Both patients were Wachuka (a native tribe of British East Africa) and fairly intelligent, though, on account of difficulties of language, not easy to examine.

The first, aged about 20 years, was admitted to hospital on March 10th, 1914, having been taken ill the day before. I was not able to ascertain the nature of the first symptoms. When first seen he showed weakness of both legs and was quite unable to stand. There was difficulty in sitting up, owing apparently to weakness of the muscles of the back and abdomen, the iliopsoas, and the glutei. The various groups of muscles in the legs were equally affected and both legs displayed the same loss of power. When lying flat he could raise either leg from the bed and flex and extend the knee- and ankle-joints, but all movements were overcome by slight resistance. All reflexes in the legs, superficial and deep, were lost. There was no loss of power in the arms and none of the muscles supplied by cranial nerves were affected. The abdominal, epigastric, and cremasteric reflexes were absent. In the arms all tendon reflexes were obtained. The palate reflex was present.

Very careful examination failed to reveal any impairment of sensation. The next day the weakness of the legs had increased, and there was considerable loss of power in the arms. The tendon reflexes of the arms were obtained with difficulty.

Hereafter there followed a progressive loss of power in the arms, legs, and trunk, until in four or five days from the onset of the disease the patient was absolutely paralysed save for the facial, orbital, and tongue muscles. The sterno-mastoid and other neck muscles retained some power so that the head

could be lifted from the bed, but not against slight resistance. Deglutition was not interfered with. There was slight loss of control of the bladder, the patient occasionally passing urine involuntarily for some days, but in less than a week this ceased and normal control was regained. There was never any incontinence of fæces. With the onset of complete paralysis respiration became entirely diaphragmatic, but with recovery costal respiration gradually returned. At no time during the disease was there any sensory loss, either of light touch, heavy pressure, or heat and cold. The result of the "compass point" test was always normal throughout the disease, and the sense of stereognosis was also unimpaired. At times slight pain was complained of in arms and legs, but it was always of brief duration, and often there was no pain for days together. The pupils remained normally active throughout, and I was unable to detect any change in the fundi oculorum, though lack of a suitable lamp made this examination very difficult. The patient's want of intelligence, or the deficiencies in my knowledge of his language, rendered even a rough charting of his visual fields an impossibility. There has never been any rise of temperature, and the pulse has varied between 75 and 85. For a month or five weeks there was no change in the patient's condition except for the return of power to the sphincter of the bladder within a few days of its loss. Since this time there has been a very slow but steady return of power, most marked in the arms.

The condition on August 1st, 1914, was as follows. The arms are weak, but the patient is perfectly capable of feeding himself and lifting light articles. There is no incoördination, even such fine movements as picking up a pin being rapidly and easily performed. The tendon reflexes in the arms are with difficulty obtainable and are absent in the legs. The neck muscles are slightly weaker than normal, as also are those of the trunk, but there is no difficulty in rising to a sitting posture and in maintaining it. The legs still remain very weak and the patient is quite unable to stand even with support, but either leg can be raised when the patient is lying down, and the knee- and ankle-joints can be weakly flexed and extended. He is able to move about slowly by sitting down and "walking on his hands"—i.e., raising the trunk from the ground and heaving the buttocks forward. What incoördination there is appears to be due to weakness rather than loss of muscle sense. All through the disease there has been very little wasting of the muscles, certainly not more than can be accounted for by disuse. The arms are now as well developed as when the patient was first seen, and the legs are quite well formed.

The second case closely resembles the first, differing only in the more complete recovery. The patient, a native, aged about 14 years, was admitted early in April of this year complaining of general pains which appeared to be rheumatic in nature. Two days after weakness of the limbs became apparent, with loss of reflexes, and in six days from the onset of symptoms there was complete paralysis of all except the facial and orbital muscles and those of mastication and deglutition. His condition exactly resembled that of the first case, except that there was never any loss of sphincter control and more pain was complained of in the limbs. After three weeks of complete paralysis a gradual recovery commenced, and by the middle of June he was able to walk with the aid of a stick. The arms regained power rather more rapidly than the legs. At the present time he can walk well unaided and is able to do light work.

In neither case was there any "blue line" on the gums or any suspicion of the patient having been exposed to lead. Previous to the onset of disease both patients had been engaged in stone-breaking for about two months—i.e., since they left their own country—and their food had been similar to that given to the rest of the native labour, mainly rice, Jugo beans, and various kinds of meal. Meat was rarely eaten, and fresh vegetables never. The only treatment given was the administration of perchloride of mercury and potassium iodide.

I am, Sir, yours faithfully,

E. NORMAN BUTLER,
Medical Officer-in-Charge, Magadi Railway, British East Africa.

THE WAR.

MEDICAL HEADQUARTERS STAFF APPOINTMENTS.

Mr. Frédéric F. Burghard, surgeon to King's College Hospital, has been appointed consulting surgeon to the Forces, and left for France on Wednesday morning to enter upon his new duties.

Sir Wilmot Herringham, Sir John Rose Bradford, and Sir Almroth Wright, whose appointment as consulting physicians to the Forces Overseas was announced in our last issue, left England on Wednesday to take up their duties with the Expeditionary Army in France, where they will hold the rank of Colonel in the Army Medical Service. We understand that Sir John Rose Bradford will be accompanied by Dr. T. R. Elliott, F.R.S., assistant physician to University College Hospital, and Sir Almroth Wright by Dr. Alexander Fleming.

MENTIONED IN DESPATCHES.

The following names of officers in the Royal Army Medical Corps have been brought forward in his recently published despatches by Field-Marshal Sir John French for special mention for services in the field from the beginning of the present campaign up to Oct. 8th:—

General Headquarters Staff.

Cummins, Major S. L.
Woodhouse, Surgeon-General T. P. (temporary).
Birrell, Major E. T. F.
Bourdillon, Lieutenant L. G.
Butler, Major S. G.
Caddell, Captain E. D.
Cowey, Major R. V.
Dolbey, Lieutenant R. V.
Ensor, Major H., D.S.O.
Fielding, Major T. E.
Foster, Major R. L. V.
Grech, Major J.
Goodwin, Major T. H. J. C., D.S.O.
Hairsine, Lieutenant C. (Special Reserve).
Helm, Lieutenant C.
Hinge, Major H. A.
Hopkins, Lieutenant H. L. (Civil Surgeon) (killed).
Howells, Lieutenant W. M.
Huggan, Lieutenant J. L. (killed) (attached 3rd Battalion Coldstream Guards).
Kempthorne, Captain G. A. (attached 1st Battalion Lincolnshire Regiment).
Lathbury, Captain E. B.
Leckie, Captain M. (attached 1st Battalion Northumberland Fusiliers).
Lewis, Captain S. E. (attached 2nd Battalion Royal Irish Rifles).
Lloyd, Major O. W.
McEntire, Captain J. T.
Mitchell, Lieutenant-Colonel L. A.
Morgan, Lieutenant-Colonel J. C.
Murphy, Captain J. F. (Special Reserve).
Nimmo, Captain W. M. (attached 1st Battalion, L. North Lancs Regiment).
O'Brien-Butler, Captain C. P. (attached 5th Lancers).
Osburn, Captain A. C.
Preston, Lieutenant R. A.
Profeit, Major C. W.
Ranken, Captain H. S. (killed) (attached 1st King's Royal Rifle Corps).
Sampson, Captain F. C.
Shields, Lieutenant H. J. S. (attached 1st Battalion Irish Guards).
Stewart, Captain H.
Ware, Captain G. W. W.
Wyler, Lieutenant E. J. (Civil Surgeon).

THE CASUALTY LIST.

The following three medical officers were serving on board H.M.S. *Hawke* when she was torpedoed on Oct. 15th and are officially assumed to have sunk with her: Staff-Surgeon George Charles Cumberland Ross, R.N., Surgeon Gustavus William Musgrave Custance, R.N., and Temporary Surgeon James Digby Watson, R.N.

Among the officers of the Royal Naval Division reported to be interned at Groningen in Holland is Temporary Surgeon B. A. Playne, R.N., who is attached to the 3rd Battalion of the 1st Naval Brigade.

The following names of officers of the Royal Army Medical Corps have appeared in casualty lists since our last issue:—

Missing: Captain A. D. Fraser. Captain W. I. Thompson, previously reported missing, is now officially reported a prisoner of war, and Captain T. B. Moriarty, previously reported missing, has now rejoined.

The name of Captain M. C. Wetherell, R.A.M.C., appears in the list of wounded British officers in Paris hospitals furnished on Oct. 16th by the British Red Cross Society.

In the casualty list from South Africa appear the names of Captain W. F. L. A. Holcroaft and Captain Dalton, of the South African Medical Corps, as wounded and taken prisoner.

GONORRHŒA AMONG THE TROOPS.

Whenever large numbers of young men are gathered together far from their homes it is not unusual that gonorrhœa and other forms of venereal disease should be present. It is therefore not surprising that in several of the newly formed camps of the recently enlisted army a number of cases of gonorrhœa should have appeared. It cannot be said that the recruits in any large quantity may have already been suffering from this disease at the time of enlistment, for each applicant for service is subjected to careful examination before he is accepted. It is impossible that the presence of such a disease as gonorrhœa should escape detection in any bulk, though a certain number whose disorder was in a latent form have been enrolled. It may be taken for granted that in most instances the disease has been acquired in the new environment and under the new conditions of life. The question of what shall be done with these recruits has been embarrassing to the authorities in some places. The new conditions and the new temptations are in great part responsible for the outbreaks of the disease where they have occurred, and often an excessive amount of gratuitous alcohol supplied by enthusiastic admirers is an important factor. It is eminently undesirable to send off to the front the men affected with gonorrhœa until the disease has been cured, for on active service the facilities for the treatment of such a disease as gonorrhœa are not great, while the disabilities of a neglected sufferer may be serious. Hospital accommodation at the front is required for the sick and wounded of the war, and all the time of the medical officers may be taken up by the injuries and wounds received in the war. There is every reason, therefore, that the sufferers should be promptly restored to health.

The methods of cure of gonorrhœa which modern science has placed in our hands are sometimes rapid. Of course, the earlier the treatment is commenced the more readily and rapidly can the disease be cured; every day of delay prolongs greatly the time during which the treatment must last, but fortunately the reasons for and opportunities of concealing an attack will not be present with the recruits. At first the gonococcus is quite superficial, and if the treatment is commenced at an early stage the inflammation will be mainly confined to the anterior part of the urethra. It is generally agreed that in early cases the irrigation of the anterior urethra with weak solutions of mild antiseptics, such as solutions of organic silver compounds, is efficacious treatment; the irrigation should, however, be done with great care, for only if the treatment is carried out correctly does the method give very good results indeed. The discharge rapidly diminishes, and in a short time practically ceases, the pain soon comes to an end, and even the microscope may show the absence of the gonococcus. The time occupied in the treatment varies greatly, but the majority of cases, if attended to early, will not become very severe or develop complications. Even so, however, convalescence may be long delayed. From one of the Territorial general hospitals we learn that the majority of a not very serious number of cases have been admitted recently, and that the treatment will on the average last six weeks before the recruit can be considered absolutely safe and sound. This implies a sad waste of time in the training of the soldier, while indicating also that the infection has been incurred since enlistment. The exact value of gonococcal vaccines is not a subject of agreement. The very high hopes at first entertained of the vaccine treatment have not been fulfilled, though to a certain extent autogenous vaccines give better results. While there is a great variance in the opinions of surgeons on the point, on the whole it may be said that vaccines are best suited for the more chronic cases, which have not responded to the ordinary treatment, and that if a vaccine is used an autogenous vaccine is the more potent.

From two sources we have received information which could leave no doubt in any mind that the evil in certain localities is a real one, though it is probably not at present so widespread as these informants would seem to suggest. Thus in one Territorial general hospital which serves the needs of 36,000 troops the surgical staff have so far not seen one case of gonorrhœa; while from another district comes the statement that although this disease was at first very prevalent among the Territorials in camp the number of cases has very greatly diminished after removal to a second site and prompt treatment with injections of permanganate. Any general action would be very difficult, for it is easy to see that the mischief must have varying fomenting causes in different centres. But it ought to be possible to prevent the actual preying upon our young soldiers by libidinous women, and the resources of law and order should be drawn upon to this end. The warnings of officers and the more special instructions of the Royal Army Medical Corps to the men have done and are doing great good, the spread of temperance has had striking effect, but the sense of the public should be roused to the necessity of protecting the men who are serving us with their lives.

We understand that a committee organised by Sir Thomas Barlow and Sir Rickman Godlee is arranging for lectures on venereal diseases at some

of the large camps which are being formed, and leading members of the medical profession in various parts of the country have been asked and have consented to give similar lectures to the men. Thus the matter is evidently not being lost sight of by those in authority.

BRITISH LEARNING AND THE WAR.

A representative group of British men of learning, mostly connected with our universities, have issued a reply to the German professors and men of science who recently appended to a denunciation of Great Britain an expression of their horror of war and of their zeal "for the achievements of culture." The document concludes as follows:—

> The German professors appear to think that Germany has in this matter some considerable body of sympathisers in the universities of Great Britain. They are gravely mistaken. Never within our lifetime has this country been so united on any great political issue. We ourselves have a real and deep admiration for German scholarship and science. We have many ties with Germany—ties of comradeship, of respect, and of affection. We grieve profoundly that, under the baleful influence of a military system and its lawless dreams of conquest, she whom we once honoured now stands revealed as the common enemy of Europe and of all peoples which respect the law of nations. We must carry on the war on which we have entered. For us, as for Belgium, it is a war of defence, waged for liberty and peace.

Among the signatories the following are so well known to the medical profession that no description of their positions is required: Sir Clifford Allbutt, Sir Charles Ball, Sir Thomas Barlow, Sir Watson Cheyne, Sir James Crichton-Browne, Sir William Crookes, Sir Francis Darwin, Sir Archibald Geikie, Sir Rickman Godlee, Dr. J. S. Haldane, Sir Wilmot Herringham, Professor J. N. Langley, Sir Oliver Lodge, Sir Donald MacAlister, Sir William Macewen, Sir Patrick Manson, Dr. F. W. Mott, Professor G. H. F. Nuttall, Sir William Osler, Sir Isambard Owen, Sir William Ramsay, Sir Ronald Ross, Professor Arthur Schuster, Professor C. S. Sherrington, Sir William Turner, and Sir Almroth Wright.

THE HEALTH OF THE HOME ARMY: A REPRESENTATIVE SANITARY SERVICE.

In a speech delivered at Buckley, Flintshire, on Monday Mr. Herbert Lewis, M.P., Parliamentary Secretary of the Local Government Board, referred to the excellent condition of health of the home army, and mentioned that only ten cases of enteric fever had been notified in the week ending Oct. 10th among the 600,000 men who were then serving, a number to which substantial addition has been made. There is no reason why the freedom from disease on which Mr. Lewis commented should not be maintained, although the concentration of large bodies of young men in camps and in public buildings and billets must bring into existence conditions which are very different from those with which the civil population is associated in time of peace, and to one side of this situation we refer in a separate note.

The country is much indebted to Sir Alfred Keogh for the encouragement which he gave to the movement for utilising the services of the medical officers of health of this country in assisting to preserve the health of the troops when mobilisation took place. In London these efforts at once had effect, and very shortly after the declaration of war the whole of the billets and encampments in the London military district were under the supervision of these officers. In the same way the localities in which troops of the London district were quartered in the neighbouring counties were brought under skilled sanitary supervision through the coöperation of the county medical officers of health, who were of course in intimate relation with the medical officers of health of districts, and who were thus able to make immediate arrangements for a system of sanitary supervision to be instituted. Whatever may arise in the future with which the health officers can deal is therefore provided for, and the coördination of the military and civil services for safeguarding the health of troops at which Sir Alfred Keogh aimed has been effected without loss of time.

The Society of Medical Officers of Health has placed its organisation at the service of the military authorities. It was stated by Mr. Herbert Lewis on the occasion to which we have referred, and as was explained last week by the president of the society, Dr. Herbert Jones, in his presidential address. The medical inspectors of the Local Government Board have been engaged in efforts to coördinate the two services in such a way as to provide for the sanitary supervision of billets and encampments, and for dealing with any sanitary questions which may arise. The steps which have already been taken have therefore provided machinery required under the special circumstances to which mobilisation has given rise, but there must necessarily be a number of points arising which will require to be settled before the organisation is complete.

For this purpose it is proposed to appoint a committee consisting of members who will represent the civil sanitary service on the one hand and the military authorities on the other. The intention to appoint such a committee has been announced, and it may be expected that its constitution will shortly be made known. If the county organisation be taken as a basis and county medical officers of health be invited to assist in a scheme of administration much of the difficulty attendant upon the division of England into sanitary districts, some of which are quite small, would be obviated. The war is only in an early stage, and as yet sufficient time has not elapsed to give opportunity for epidemic disease to be introduced into this country from abroad. At any rate, if later we should find the country invaded by small-pox or cholera there will be no difficulty in coping with it, and every step will be able to be taken to preserve the home army from special risks due to their concentration in the camps which are being formed.

GOVERNMENT VACCINES FROM THE INOCULATION DEPARTMENT OF ST. MARY'S HOSPITAL.

The Inoculation Department of St. Mary's Hospital has been busily occupied since the beginning of the war in preparing doses of vaccines for the British Expeditionary Force and the Allied armies generally. The total number of doses of vaccine supplied by the end of last week was 1,476,374, which represents approximately 166 gallons of liquid. These have been prepared by the staff of the department under the supervision of Captain S. R. Douglas, I.M.S. (ret.), Captain A. F. Hayden, I.M.S. (ret.), Dr. Alexander Fleming, Dr. John Matthews, and Dr. John Freeman. The preparation of these large quantities has been much facilitated by the use of the culture medium described in THE LANCET of Oct. 10th, p. 891. In addition to antityphoid vaccine, an

"antisepsis" vaccine has also been made, consisting of 500 million staphylococcus aureus and 25 million streptococcus erysipelatis in each dose of 0·5 c.c. The idea is that such a dose might usefully be given in cases in which sepsis is to be apprehended or is commencing, while a much smaller dose, 0·05 c.c., might be given when such sepsis has established itself in the form of a septicæmia. In addition to preparing this antisepsis vaccine for the British army and navy, the inoculation department has sent 200,000 doses to the French army and 100,000 doses to the Belgian army, and its latest undertaking is to send 100,000 doses to the Russian army, and more if needed. We understand that Sir Almroth Wright, whose departure for France is announced elsewhere, is accompanied by Dr. Fleming with the object of ascertaining whether these vaccines are being used to full advantage and to consider the possibility of other vaccines being supplied. Another member of the inoculation staff may go to Galicia *vid* Russia to obtain a culture of cholera. In the meantime the remainder of the staff will endeavour to keep abreast of the demand for vaccines.

OBITUARY OF THE WAR.

HARRY SHERWOOD RANKEN, M.B., CH.B. GLASG., M.R.C.P. LOND.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain H. S. Ranken, who died at Braisne on Sept. 25th from wounds received in action on Sept. 19th, was the elder son of the Rev. Henry Ranken, B.D., minister of Irvine parish, and in the Scots phrase was thus "a son of the manse." He was born on Sept. 3rd, 1883, and was educated at the Irvine Royal Academy, at Anderson's College, and at the University of Glasgow, where he graduated in medicine, with commendation in 1905. After qualifying he held the posts of resident house surgeon and house physician at the Glasgow Western Infirmary and assistant medical officer at the Brook Fever Hospital under the Metropolitan Asylums Board. He joined the Royal Army Medical Corps in January, 1909, taking first place at the entrance examination, and retaining this place at the examination during the probationary course. He also gained the Tulloch medal, the medal for military medicine, the medal and prize for tropical medicine, the De Chaumont prize in hygiene, and the prize of £20 for grand aggregate of marks in all examinations during the probationary course, open to the Royal Army Medical Corps and the Indian Medical Service. From 1909 to 1911 Lieutenant Ranken was stationed in London under the Eastern Command, and during this period was assistant to Sir William Leishman at the Royal Army Medical College and to Dr. H. G. Plimmer in the Brown Institute, and engaged himself in research work, particularly in connexion with sleeping sickness. In 1910 he obtained the M.R.C.P. diploma, and in the following year passed the examination for captaincy with special certificate and was promoted captain in July, 1912. During these years he contributed, jointly with Major W. B. Fry and Dr. Plimmer, several important papers on trypanosomiasis, which were published in the Proceedings of the Royal Society. From August, 1911, until June, 1914, he served as a member of the Soudan Government Sleeping Sickness Commission, and was in charge of the camp at Yei in the Lado enclave. When war was declared Captain Ranken volunteered for service with the Expeditionary Force, and was attached to the 1st Battalion King's Royal Rifle Corps. For his gallant conduct in the field he was recommended for the Victoria Cross by the officer commanding, and his name is mentioned in Sir John French's despatch. The bare record of his scientific and professional career shows that he was a man of unusual ability with a special leaning towards research, and his early and heroic death robs the Royal Army Medical Corps of one of its most promising and accomplished junior officers. Captain Ranken was a keen big game shot in the Soudan, and was a "scratch" golfer, representing his University in several matches and winning many cups and other prizes.

THOMAS SCATCHARD, L.M.S.S.A.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain Thomas Scatchard, who was killed in action on Sept. 8th, was born at Boston Spa on July 6th, 1878. He was the youngest son of Dr. T. E. Scatchard, whose family have been medical practitioners in that district of Yorkshire for several generations. He was educated at Epsom College and Leeds Medical School. He qualified in 1902 and entered the Royal Army Medical Corps in July, 1905, after having acted as house physician to the Leeds Infirmary and house surgeon to the Beckett Hospital, Barnsley. He spent the first 18 months of his military life at Aldershot, and then served at various stations in India for 5½ years, being promoted captain in 1909. Whilst in India he married the youngest daughter of the late Colonel de la Motte Hervey. Captain Scatchard was at the Connaught Hospital, Aldershot, before the outbreak of war, in charge of the salvarsan department, and was an examiner in this subject for promotion to the rank of captain. On mobilisation he was attached to the 26th Brigade, Royal Field Artillery, and sailed for France on August 15th. He was killed, with General Finlay and Colonel Grant Duff, by the bursting of a shell upon the Brigade Staff while on march between Choisy and Basseville. Captain Scatchard was a keen sportsman, devoted to fishing and shooting, a very good lawn-tennis player, and a great lover of animals, particularly horses.

JOHN FORBES O'CONNELL, M.B., B.S. LOND.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant J. F. O'Connell, who was killed in action on Sept. 20th during the battle of the Aisne, was the elder son of Lieutenant-Colonel D. V. O'Connell, R.A.M.C. (retired), and the great-grandson of Dr. James Forbes, Inspector-General of the Forces, who served with distinction in the Peninsular war and was the founder of the Army Medical Mess at Fort Pitt, Chatham. He was born on Feb. 18th, 1889, at Neemuch, Central India, where his father was then serving. He was educated at Epsom College, where he gained an entrance scholarship, and at St. Mary's Hospital, from which he graduated M.B., B.S. of the University of London in 1912, having obtained the Licence of the Society of Apothecaries a few months previously. After serving as house physician at St. Mary's Hospital and assistant resident medical officer at Hanwell Asylum, he joined the Royal Army Medical Corps in January, 1913, taking fifth place at the entrance examination. He was an ardent Rugby football player, and twice captained his hospital team, besides playing for the London Welsh and London Irish clubs.

Until his departure for the front on August 14th in medical charge of the 2nd Highland Light Infantry Lieutenant O'Connell was stationed at the Connaught Hospital, Aldershot. During his short life his open, generous, and cheerful nature won him many friends. Of his death, the officer commanding the Highland Light Infantry has written: "He was shot dead by a rifle bullet in the trenches while gallantly attending Second Lieutenant Fergusson who had been severely wounded. We all feel his loss most acutely. He was a general favourite with us all. He was extraordinarily brave under fire, and very hard working and popular with all ranks. The act which cost him his life was characteristic of him." Lieutenant O'Connell's early death is rendered sadder by the fact that he was married only a few months ago. His younger brother is serving with the Canadian contingent.

JAMES LAIDLAW HUGGAN, M.B., CH.B. EDIN.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant J. L. Huggan, who was killed at the battle of the Aisne on Sept. 16th, was born in 1890 and came of a well-known Jedburgh family. He was educated at Watson's College and at the University of Edinburgh, where he graduated M.B., Ch.B. in 1911. He was a very popular student in all circles and a general favourite, and he had an excellent record in all his professional examinations. After taking his medical degrees he acted as resident house surgeon at the Edinburgh Royal Infirmary, and then came to London to continue his studies. He joined the Royal Army Medical Corps in July, 1912, and went to the front as medical officer attached to the 3rd Battalion Coldstream Guards. Concerning his heroic death Colonel Drummond Hay has written: "Lieutenant Soames, Coldstream Guards, told me Dr. Huggan was extraordinarily gallant, and two days before he was killed he was recommended for the Victoria Cross for organising and leading a party of volunteers to remove a number of wounded from a barn that had been set on fire by the German shell fire. The work was carried out under a very heavy shell fire, and all the wounded were saved." Lieutenant Huggan's name has since been mentioned in Sir John French's latest despatch for special services in the field. As a Rugby footballer Huggan was very well known. After playing three-quarter back for Edinburgh University and the London Scottish clubs, he came very much to the front last year, and largely on account of his fine play for the Army against the Navy he was chosen to represent Scotland against England in the International match last March.

The following notes on the methods used in France for caring for the wounded are based on information obtained from the Military Service de Santé and from some of the leading Paris physicians by one of our Paris correspondents.

There was outspoken criticism of the delay which at first occurred, not only in transporting the wounded from the battlefield, but also in the trains which took them to the hospitals. Large numbers of men were left in barns lying on straw with inadequate medical attendance because the centralised authority had not foreseen the magnitude of its task and had refused to delegate its authority. All this is now being rapidly remedied.

It is still extremely difficult for any private motor ambulance, no matter how efficiently equipped, to obtain the necessary permit to go near the zone of operations, and this permit has to be renewed each week. But the problem of coping with thousands of wounded was so great that private enterprise is now allowed some play, but it must be admitted the harassed authorities were caught between the devil of the morbid curiosity mongers and the deep sea of the ubiquitous spy. Private offers were discouraged and the three branches of the French Red Cross were only allowed to receive the wounded distributed by the military authorities, but not to go and get them. Madame Michel Ephrussi has just given the army a perfectly organised sanitary train of 12 wagons and a luggage van fitted up as a kitchen and pharmacy. Dr. Tuffier, of the Hôpital Beaujon, one of the most famous Paris surgeons, who has just made a tour of inspection of the medical arrangements at the front, states that the sanitary train with complete convenience exists only in universal exhibitions; the passenger train with its three classes contains too few patients; only the freight train can convey 500 wounded, and as it is these trains which bring the supplies of ammunition and of food they are the only ones present which can be used. The criticisms of these trains are justified, but when there were 4000 wounded to evacuate every evening it was impossible, cruel as this decision might be, to employ another means of transport.

The two great difficulties beside the initial one of the lack of any adequate organisation to cope with such numbers have been the length of the field of operations extending from 150 to 200 kilometres and the imperative necessity of using the trains primarily for the movement of troops and for their commissariat. The conditions of transport are now remedied. The ordinary trains with all danger of infection are still used for the Paris hospitals, but the rest hospitals installed in the chateaux between Paris and the fighting line are now being allowed to use their own service of motor ambulances if they are lucky enough to possess them. The American hospital installed in the Lycée Pasteur has had an admirable service of motor cars from the first, and their apparent immunity from the annoyances of red tape has been the envy of other establishments. Madame Ida Rubenstein has given a number of motors to this hospital as well as bringing in wounded by motor to the ambulance which she has installed in the Hôtel Bristol. I believe the American hospital has 20 cars, and in a short time the British Red Cross is to have 200 working in France. The need for more cars is still pressing. They can, of course, only accommodate a limited number of wounded—the usual model takes four wounded lying down and two attendants, or two badly wounded and six able to sit up—but they can get down to Paris from the front in two hours, while a cattle train without doctors or nurses has before now been left on a siding, and only arrives sometimes in 20 hours. Paris is even now much better served than the provinces, where in some cases there has been lamentable overcrowding with very insufficient equipment. But all these motors serve only to supply Paris, or, at best, the chateaux hospitals in the neighbourhood. Too much stress can hardly be laid on the urgent need that exists for a similar service for some of the provinces. Everything that exists in abundance in Paris is lacking in many districts. A friend of mine reports that in a town in the Correz department 2500 wounded were brought to a tiny hospital where no provision was made for them. A report published in Paris on Oct. 5th by an eye-witness states that in one provincial hospital the surgeons were working night and day, as there were only three to every 1000 men.

In spite of all the defects of officialdom, which I can see are being remedied as rapidly as possible, the general health of the allied troops is declared to be surprisingly good, not so many cases of disease being reported as in times of peace. There have been a few isolated cases of typhoid and scarlet fever among the recruits. Rigorous precautions have been taken to prevent the spread of infection, and the mortality among the typhoid cases has only been 6 per cent. and among the scarlet fever 2 per cent.

The head surgeon in one of the big Paris ambulance hospitals gave me the following observations made in the course of his work. Alluding to dum-dum bullets, he said it is practically impossible to decide if a wound has been caused by a dum-dum or not in isolated examples. If a man is hit by a shrapnel bullet at

a distance of 500 yards and the ball happens to splinter a bone instead of merely passing through tissue it makes a large hole on leaving the body exactly like a dum-dum bullet would do. Another possibility is that the bullet may be flattened and made jagged or practically turned into a dum-dum after leaving the gun by the simple fact of striking some hard substance, such as a stone, another projectile in the air, or even part of the soldier's accoutrements before it strikes him, making a dangerous wound.

An interesting fact which he noted is the rarity of abdominal wounds. Wounds in the upper and lower limbs are still the most frequent, and there have been many in the head, the spinal column, and the chest. The greater number of cases of tetanus have occurred among the German wounded. Here officialdom has been open to criticism, in the opinion of my informants. On Oct. 6th an order was issued from the French Minister of War that no serum was to be sent from the Pasteur Institute without an order from Bordeaux. Luckily most of the hospitals had already laid in a stock, but in case this gives out a patient might die ten times over before an order for the serum could possibly be sent for and return from Bordeaux in the present state of the post. It is realised in Paris that the serum should be given to every wounded soldier as soon as he is taken off the battlefield; if there is a delay till he finally gets to hospital the disease is often too far advanced for hope. The military authorities possess two-thirds of the stock of serum available. The reason for the order was the danger of the stock giving out if used indiscriminately. Inquiries made at the Pasteur Institute prove that there is little fear of any shortage in the supply. It is now possible to furnish 4000 bottles of serum per day, and in three months' time a further supply can be guaranteed.

THE WOUNDED IN THE WAR.

We publish this week a review by Mr. G. H. Makins, consulting surgeon to the Forces Oversea, upon the wounded in the present campaign, which shows clearly the great improvement that has taken place in the condition of the patients under the more satisfactory arrangements for transport that are now possible, and which day by day are leading to the disappearance of the methods graphically portrayed below by a Paris correspondent. The abatement of tetanus is most satisfactory, while the efforts at treatment have been assiduous. Mr. Edmund Owen's notes on the cases of wounded that came suddenly under his care, and that of the staff at the Epsom and Ewell War Hospital, indicate the terrible severity of many of the shell wounds, and his testimony to the courage of the sufferers is moving. The report by Staff Surgeon Pick, Surgeon Rankine, and Surgeon Lambert of the cases which came under their care after engagements in the North Sea also illustrates the severity of the shell wounds received and the value of good first aid. In many of the cases the interval between the infliction of the injury and the commencement of anything more than first-aid treatment amounted to many hours, so that often the degree of shock was very great, but it is clear that the first aid that was afforded did much to check septic processes. The features of the wounds caused by the shells were in many respects remarkable. In some the shell fragment had scooped out a portion of tissue, so that there was no wound of entrance or exit, but merely a complete loss of the superficial tissues. In punctured wounds the fragment sometimes buried itself deeply, while in others it made a long subcutaneous track. Whenever serge from the clothing was carried in with the shell fragment the wound was more septic than when pieces of linen were present; this is a little difficult to explain. The German sailors were wearing lifebelts when in action, so that in many cases pieces of cork from the belts were found in the wounds. The paper is one of the earliest to report the injuries produced by high explosives, and attention may also be drawn to the testimony of the authors to the value of vaccines.

WORK OF THE BRITISH RED CROSS SOCIETY.—In a summary of the work accomplished during the week ending Oct. 21st the British Red Cross Society states that the total number of beds in the auxiliary home hospitals approved by the War Office is now 6480, and between 50 and 60 Voluntary Aid Detachments are being utilised in connexion with these hospitals. The amount of stores sent abroad by the Stores and Transport Department during the past week was comparatively small. This was due to the large quantity despatched in the previous week, to the desirability of keeping a full stock of supplies in view of the great influx of Belgians into England, and to the change of headquarters in France from Paris to Bolougne. In response to a sudden call from the War Office hospital clothing for 1000 Indian soldiers was sent to Netley the same evening. Garments to the number of 53,787 were issued during the week, and £2235 were expended upon purely medical stores. The society now has six surgeons always at hand ready to be sent in response to emergency calls, while the personnel of the ambulance train is being got ready, and a permanent "emergency unit" of 12 nurses is now ready. During the week 37 motor ambulances and 2 motor cycles were dispatched to the Continent, and 13 ambulances were furnished to the War Office. The Army Council has expressed its appreciation of the assistance rendered by the Voluntary Aid Detachments in the Eastern Command during the disembarkation and disposal of the sick and wounded Belgian soldiers arriving between Oct. 12th and 16th.

WOUNDED AT LONDON HOSPITALS.—328 Belgian wounded have been received at the London Hospital, Whitechapel-road. They have been through the siege of Antwerp and were brought to England when that city was evacuated. All the English wounded who were originally taken in at this hospital have been discharged. 50 wounded Belgian soldiers have been received in St. Bartholomew's Hospital, and 11 wounded Belgian officers at the Red Cross Hospital in Fishmongers' Hall. Most of the wounds have been due to shrapnel.

EDINBURGH IN WAR TIME.—Our Edinburgh correspondent writes: Lord Kitchener's nomination as Rector of the University has been welcomed by all sections of the undergraduates, and as there will be no contest the nomination and election will take place together on Oct. 24th. The winter session of the University opened on Oct. 6th. From the matriculation figures it appears that there is a fall in the number of students of fully 400, due to the fact that so many men have replied to the call of the country. 230 members of the Officers' Training Corps have received commissions: Artillery, 111; infantry, 78; engineers, 10; medical, 31; while over 60 of the last unit form the field ambulance section of the Scottish Horse. About 100 are Territorials and distributed between the Edinburgh new battalion, the Scottish Horse, and many other corps. When all are summed up the total number of students and graduates should be 1000. What will rank as one of the quietest graduation ceremonies held in connexion with this University took place in the McEwan Hall on Oct. 16th. There was an entire absence of the usual display of student spirits, and the attendance both of students and of the public was smaller than usual. For these features the shadow of the war is accountable. Principal Sir William Turner, who has completed 60 years of service for the University—demonstrator in and then professor of anatomy, and finally principal and vice-chancellor—occupied the chair.

Dalmeny House, which the Earl of Rosebery has generously placed at the disposal of the naval and military authorities for the treatment of wounded, was called into service for the first time on Oct. 16th, when a trainload of sick and wounded from the battle front in France arrived in Edinburgh and were conveyed by motor transport to the hospital. Men from a number of regiments were among the detachment, and the Red Cross Society

rendered valuable assistance by having a fleet of over 30 motor vehicles in readiness at the station for the conveyance of these patients.—On the night of Oct. 17th an ambulance train from Southampton arrived at Prince's-street Station. The wounded men numbered about 100. All were taken to the Royal Infirmary. The majority of the men were wounded round Béthune and Lille.—On Monday morning, Oct. 19th, at the early hour of 5 o'clock, another body of wounded numbering about 100 arrived at Prince's-street and were conveyed in motor ambulances and private cars to Craigleith Hospital.

AUSTRALIA AND THE WAR.—Our Australian correspondent sends the following timely details:—"The war is the sole topic of interest, and preparations are going forward actively for the despatch of Australian contingents. The volunteering has been satisfactory, and the medical officers have been somewhat strict in their examination, so that physically the Commonwealth force will be a fine fighting unit. It is now announced that in addition to the field medical equipment with the troops the Minister of Defence proposes to send a light horse field ambulance, a field ambulance, a clearing hospital, two stationary hospitals, and two general hospitals. These will require about 1000 persons of all ranks, including trained nurses and 80 medical officers. Many well-known medical men have volunteered. An interesting feature of the medical outfit already in the field is an X ray plant mounted upon a motor-car and freely movable at top speed. It has been designed and carried out by Dr. Stanley Argyle, specialist to the Alfred Hospital and its cost was borne by private subscription. It will be in charge of Captain Nicholas, late resident at the Melbourne Hospital. The *Grantala* has been fitted as a hospital ship with a staff of seven or eight surgeons and Mr. W. James, M.S. Melb., as consulting surgeon, and is in commission. Amongst civil surgeons who have offered their services and been accepted is Mr. F. D. Bird, lecturer in surgery at the Melbourne University, and he will provide two nurses for hospital duty. Vaccine for the preventive inoculation of enteric fever has been prepared by the New South Wales Department of Public Health and will be available for the medical profession. It will also be used for inoculation among the troops being despatched to the war. Sufficient to treat 22,000 men is said to have been supplied at a cost of about 1*d.* per man."

THE QUEEN'S CANADIAN MILITARY HOSPITAL.—With the approval of the War Office, Beachborough Park, near Shorncliffe, has been placed by Sir Arthur and Lady Markham at the disposal of the Canadian War Contingent Association for use as a military hospital, and for this purpose it has now been prepared and equipped. It is to be known as the Queen's Canadian Military Hospital and has accommodation for upwards of 50 patients. The medical and surgical organisation is under the supervision respectively of Sir William Osler and Mr. Donald Armour. The nursing staff consists of Canadian-trained nurses under the superintendence of Miss Amy MacMahon, of Toronto.

LONDON PANEL PRACTITIONERS' GIFT.—The motor ambulance presented by the practitioners on the panel in the County of London has been handed over to the British Red Cross Society and will immediately be sent to France for use in bringing wounded soldiers from the front to the base hospitals.

BELGIAN WOUNDED AT HASLAR.—The first large batch of wounded and sick to be admitted to the Royal Naval Hospital, Haslar, for treatment since the outbreak of the war arrived on Oct. 13th. They numbered 572, all Belgians, including 142 officers. They were chiefly victims of the bombardment of Antwerp. Some were seriously injured, but a few were refugees, who have now been sent elsewhere.

Dr. John Cosmo Stuart Rashleigh, of Throwleigh, Okehampton, has presented a fully equipped motor ambulance to the British Red Cross Society, and is himself going to the front with the ambulance.

MEDICAL MAGISTRATE.—Dr. Edmund Hobhouse has been placed on the commission of the peace for the borough of Hove.

Medical News.

UNIVERSITY OF OXFORD.—The following medical degrees have been conferred:—

D.M.—H. J. B. Fry, Magdalen; and O. A. R. Berkeley-Hill, Trinity (*in absentiâ*).

UNIVERSITY OF CAMBRIDGE.—The following medical degrees have been conferred:—

M.D.—R. F. Higgin, Caius.
M.B., B.C.—C. G. H. Moore, Caius; and L. E. S. Sharpe, Trinity.

The following candidates have satisfied the examiners in both parts of the examination in Sanitary Science:—

Edward Bach, James Lionel Bocarro, Jane Malcolm Davidson, Leander Lowrie Fyfe, Hirji Dorabji Gimi, Ignatius James Khaw Oo Kek, John McCallum Lang, Ram Chandr Malhotra, Bidham Prosad Mozoomdar, *†William Henry Peacock, Raghu Nath Roy, and †Ashley George Gyton Thompson.

* Distinguished in the practical application of sanitary science and pathology. † Distinguished in bacteriology.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—At the examinations conducted on Oct. 7th for the Licence in Dental Surgery, the following Associates passed the Final Examination and were admitted Licentiates in Dental Surgery:—

Roland Harry Bebb, Walsall; Francis Edward Stuart Brailsford, Enfield, Middlesex; John Stewart Marshall Connell, Glasgow; John Graham, Stirling; William Gilmour Gray, Glengarnock; Arthur William Whewell Holmes, Heat Bank, Lancaster; Percy Hope Johnstone, Leytonstone, Essex; James Alexander M'Gowan, Elgin; and Frederick William Robinson, Erdington, Birmingham.

SOCIETY OF APOTHECARIES OF LONDON.—Mr. Meredith Townsend, M.R.C.S. Eng., has been elected Master of the Society of Apothecaries for the ensuing year, and the new wardens are Dr. George Amsden and Mr. A. H. W. Ayling.

ROYAL SANITARY INSTITUTE.—The following medical practitioners have this month been elected members of the Royal Sanitary Institute:—Dr. J. D. Buchanan (Lancaster), Dr. W. A. Daley (Bootle), Dr. G. H. Dart (Greenwich), Dr. F. Hauxwell and Dr. S. J. E. Holden (St. Helens), Mr. W. M. McIlraith (Rawtenstall), Mr. C. D. Outred (Gravesend), and Dr. A. E. Townley (Oswaldthistle).

THE next meeting of the Life Assurance Medical Officers' Association will be held at 1, Wimpole-street, W., in the rooms of the Royal Society of Medicine on Wednesday, Nov. 4th, at 5.30 P.M., when Dr. H. J. Cardale and Dr. J. Fletcher Porter will initiate a discussion on "The Certification of Invalidity under the National Insurance Act." The association will welcome the presence of any medical man.

CHARING CROSS HOSPITAL: THE HUXLEY LECTURE.—The Huxley Memorial Lecture on Recent Advances in Science in Relation to Medicine and Surgery will be delivered in the hospital on Monday, Nov. 2nd, at 3 P.M., by Sir Ronald Ross, F.R.S., Sir Thomas Barlow, Bart., President of the Royal College of Physicians of London, in the chair. The lecture is open to all members of the medical profession.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—At the annual general meeting of this society, held on Oct. 16th at 1, Upper Montagne-street, London, W.C., Dr. Herbert Jones, D.P.H., was inducted as President for the ensuing year and delivered his presidential address upon "The Public Health Service and the National Crisis." Sir Arthur Whitelegge and Dr. Edward C. Seaton were elected honorary Fellows, and Dr. E. W. Hope was presented with his portrait by the North-Western Branch of the society.

HUNTERIAN SOCIETY.—The Presidential address will be delivered by Dr. T. Glover Lyon at the Barbers' Hall, Monkwell-street, E.C., on Wednesday next, Oct. 28th, at 4.30 P.M. Dr. Glover Lyon will take for his subject "The Barber-Surgeons and the Medical Profession." The address will be illustrated by many objects of interest belonging to the company, including the famous painting by Holbein of the granting of a charter to the company, the cup presented by Henry VIII., and another cup presented by Charles II.

These and other numerous works of art and relics will be displayed for the inspection of Fellows and visitors. Sir Thomas B. Crosby, M.D., hopes to be present and to address the meeting on the relation of the Barbers' Company to the corporate life of the City of London. Tea will be served at 4 P.M. All members of the medical profession are cordially invited.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—The annual meeting of the Royal College of Physicians of Ireland was held on the morrow of St. Luke's day. The annual dinner was pretermitted on account of the war. Dr. C. E. FitzGerald's term of office as president has concluded, to the great regret of the Fellows. He attended to his duties with great assiduity, and by his courtesy to all, and by his ready grasp of matters under discussion, he guided the College business with success. He is succeeded by Dr. E. MacD. Cosgrave.

THE CHILD-STUDY SOCIETY, LONDON.—The following programme of lectures has been arranged for the present session: Oct. 29th, Miss Evelyn Fox, on the After-care of Mental Defectives; Nov. 5th, Mr. P. Macleod Yearsley, F.R.C.S., on the Classification of the Deaf Child for Educational Purposes; Nov. 19th, Dr. T. Percy Nunn, on Development of the Practical Imagination in Children; Dec. 3rd, Miss Margaret Corner, M.A., on Self-expression through Language with Older Children. The meetings will be held at 7.30 P.M. at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BORNHAM, H. W., M.B., B.Ch. Edin., has been appointed Clinical Tutor in the Edinburgh Royal Infirmary.

COATES, W. HARRISON, M.R.C.S., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Hucknall Torkard District of the county of Nottingham.

DICKIE, J. K. MILNE, M.D. Edin., has been appointed Clinical Tutor in the Edinburgh Royal Infirmary.

GRAHAM, G. M., F.R.C.S. Edin., has been appointed Surgeon to the Craigleith Hospital.

JOHNSTONE, G. GORDON, M.B., B.C. Cantab., has been appointed Clinical Assistant in the Ophthalmic Department at University College Hospital.

JOHNSTONE, R. W., M.D. Edin., has been appointed Clinical Tutor in the Edinburgh Royal Infirmary.

JONES, G. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Rathfriland District of the county of Down.

MADILL, J. H., M.B., Ch.B. Edin., has been appointed Clinical Assistant in the Edinburgh Royal Infirmary.

MARTIN, E. K., M.B. Lond., F.R.C.S. Eng., has been appointed Junior Surgical Registrar at University College Hospital.

MATHEWSON, GEORGE D., M.B. Edin., has been appointed Clinical Assistant in the Edinburgh Royal Infirmary.

RITCHIE, A. G., M.B., Ch.B. Edin., has been appointed Clinical Tutor in the Edinburgh Royal Infirmary.

RUTHERFORD, ANDREW, M.B., Ch.B. Edin., has been appointed Clinical Tutor in the Edinburgh Royal Infirmary.

STEELE-PERKINS, DUNCOMBE STEELE, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer in charge of Troops at Honiton, Devon.

STEPHEN, J. W., M.B., Ch.B. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Beith District of the county of Ayr.

TAYLOR, MARK RONALD, L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer for the Wendron District by the Helston (Cornwall) Board of Guardians.

THOMPSON, ROBERT BUSHER, M.B., Ch.B. Vict., has been appointed Medical Officer for Brixham and Churston District by the Totnes (Devon) Board of Guardians.

THOMSON, H. J., M.B., Ch.B. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Alford District of the county of Aberdeen.

YOUNG, JAMES, M.D. Edin., has been appointed Clinical Tutor in the Edinburgh Royal Infirmary.

YULE, ROBERT MORTIMER, M.D. Aberd., has been appointed a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Caithness, Orkney, and Shetland, to be attached more particularly to the Shetland District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Assistant Physician. Salary £200 per annum, with board, apartments, laundry, and attendance.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRMINGHAM CITY ASYLUM, Rubery-hill.—Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.

BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Third Assistant Medical Officer and Fourth Assistant Medical Officer. Salary at rate of £170 and £160 per annum respectively. ERDINGTON INFIRMARY AND COTTAGE HOMES: Assistant Medical Officer. Salary at rate of £200 per annum. SELLY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £180 per annum. Apartments, rations, laundry, and attendance in each case.

BOOTLE, CORPORATION HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Officer, unmarried. Salary £250 per annum, with board, washing, and apartments.

BRISTOL CITY ASYLUM, Fishponds.—Second Assistant Medical Officer, unmarried. Salary £250 per annum, with apartments, board, washing, and attendance.

BROMSGROVE, WORCESTERSHIRE ASYLUM.—Deputy Medical Superintendent and Second Assistant Medical Officer. Salary £300 and £225 per annum respectively, with apartments, board, washing, and attendance.

BURSLEM, HAYWOOD HOSPITAL.—Female Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.

BURY AND DISTRICT JOINT HOSPITAL BOARD.—Assistant to Medical Superintendent. Salary £200 per annum, with board, washing, and lodging.

CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Junior Assistant Third Medical Officer, unmarried. Salary £250 per annum, with quarters, board, washing, &c.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Dental Surgeon.

CHESHIRE EDUCATION COMMITTEE.—Fourth Assistant to the Chief School Medical Officer. Salary £350 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £200 per annum, with board, apartments, and laundry.

CHICHESTER, ROYAL WEST SUSSEX HOSPITAL.—House Surgeon, unmarried. Salary £110 per annum, with board, residence, and washing.

CITY OF WESTMINSTER UNION INFIRMARY, Fulham-road, S.W.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salaries £160 and £140 per annum respectively, with board, residence, and washing.

CONSTANCE ROAD INSTITUTION, Grove Vale, East Dulwich.—Temporary Resident Medical Officer. Salary at rate of £225 per annum, with apartments, board, washing, &c.

DERBY COUNTY SANATORIUM.—Resident Assistant. Salary £250 per annum, with board, lodging, and laundry.

DOUGLAS, NOBLE'S ISLE OF MAN HOSPITAL.—Resident House Surgeon, unmarried. Salary £150 per annum, with board and washing.

DURHAM COUNTY COUNCIL.—Female Assistant School Medical Officer. Salary £300 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House Physician for six months. Also House Surgeon for four months. Salary at rate of £75 per annum, with board, residence, and washing.

EXETER CITY ASYLUM.—Medical Superintendent. Salary £500 per annum, with unfurnished house, coal, lighting, laundry, &c.

GATESHEAD ASYLUM, Stannington, Northumberland.—Assistant Medical Officer, unmarried. Salary £220 per annum, with rooms, board, and laundry.

GLAMORGAN COUNTY COUNCIL.—Medical Officer. Salary £250 per annum.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT YARMOUTH COUNTY BOROUGH.—Assistant Medical Officer of Health. Salary £250 per annum.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £140 per annum, with board, lodging, and washing.

GREENWICH, DREADNOUGHT HOSPITAL.—House Surgeon and Casualty Officer. Salary at rate of £50 per annum each, with board, residence, and washing.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, both unmarried. Salaries £120 and £100 per annum respectively, with residence, board, and washing.

HARROGATE INFIRMARY.—Resident House Surgeon. Salary £100 per annum.

HARROW-ON-THE-HILL URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary at rate of £200 per annum.

HEREFORD COUNTY AND CITY ASYLUM.—Junior Assistant Medical Officer. Salary £200 per annum and all found except stimulants.

HUDDERSFIELD ROYAL INFIRMARY.—Senior and Junior Assistant House Surgeons. Salary £80 per annum each, with board, rooms, and washing.

HULL ROYAL INFIRMARY.—Senior House Surgeon, unmarried. Salary £150 per annum, with board and apartments. Also Assistant House Surgeon. Salary at rate of £100 per annum, with board and lodging. Also Honorary Assistant Medical Officer to attend Out-patients' Department.

KING'S LYNN, LYNN AND WEST NORFOLK HOSPITAL.—House Surgeon. Salary £150 per annum.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—Two House Surgeons for six months. Salary at rate of £50 per annum, with board.

LEICESTER ROYAL INFIRMARY.—Resident Assistant House Surgeons and Dressers.

LIVERPOOL, ST. PAUL'S EYE HOSPITAL.—House Surgeon. Salary £80 per annum, with board and residence.

MANCHESTER, ANCOATS HOSPITAL, Mill-street.—Assistant House Surgeon. Salary £70 per annum, with board and residence.

MANCHESTER, COUNTY ASYLUM. Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER POOR-LAW INSTITUTION, Crumpsall.—Second Resident Assistant Medical Officer and Junior Resident Assistant Medical Officer, both unmarried. Salary £180 and £160 per annum respectively, with rations, apartments, fire, light, washing, and attendance.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.

METROPOLITAN ASYLUMS BOARD INFECTIOUS HOSPITALS SERVICE.—Assistant Medical Officers, unmarried. Salary £250 per annum, with board, lodging, and washing.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Fitzroy-square, W.—House Surgeon. Salary £150 per annum.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £120 per annum, with board, washing, and attendance.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £85 per annum, with board, residence, and laundry.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Physician.

NEWCASTLE-UPON-TYNE AND NORTHUMBERLAND SANATORIUM FOR CONSUMPTIVES, Barrasford, North Tyne.—Resident Medical Officer, unmarried. Salary £350 per annum, with board, residence, and laundry.

NEWCASTLE-UPON-TYNE HOSPITAL FOR SICK CHILDREN.—Senior Medical Officer and Junior Medical Officer for six months. Salary £100 and £80 per annum respectively, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Four House Physicians, Four House Surgeons, Accident Room House Surgeon, House Surgeon to the Aural and Ophthalmic Department, House Surgeon to the Skin and Gynæcological Department, and House Surgeon to the Out-patient Dressing Department.

NEWPORT (MON.). ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORTHAMPTON COUNTY ASYLUM, Berry Wood.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.

NORTHAMPTON GENERAL HOSPITAL.—Two House Surgeons. Salary £120 per annum, with apartments, board, washing, attendance, &c.

NOTTINGHAM CHILDREN'S HOSPITAL.—Female House Surgeon for six months. Salary at rate of £130 per annum, with apartments, board, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician and Assistant House Surgeon for six months. Salary at rate of £100 per annum each, with board, residence, and laundry. Also Senior House Physician. Salary £120 per annum, with board, residence, and laundry.

OLDHAM ROYAL INFIRMARY.—Third House Surgeon for six months. Salary at rate of £100 per annum, with board and residence.

PADDINGTON BOARD OF GUARDIANS.—District Medical Officer. Salary at rate of £100 per annum.

PADDINGTON INFIRMARY WORKHOUSE, 285, Harrow-road, Paddington, W.—Two Assistant Medical Officers for six months. Salary at rate of £250 per annum, with board, lodging, and washing.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with rooms, board, and laundry.

ROCHESTER, ST. BARTHOLOMEW'S HOSPITAL.—Resident House Physician for six months. Salary at rate of £110 per annum, with board, residence, and laundry.

ROYAL EYE HOSPITAL, Southwark.—Senior House Surgeon. Salary £70 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Junior Resident Medical Officer. Salary at rate of £70 per annum, with board and washing.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £115 per annum.

ST. ALBANS, HERTS COUNTY ASYLUM, Hill End.—Second Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.—Honorary Anæsthetist to the Institution and Anæsthetist to the L.C.C. School Dental Clinic. Also Honorary Gynæcologist, Temporary Honorary Ophthalmic Surgeon, and Honorary Medical Radiographer.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Female Resident Medical Officer and Female Assistant Resident Medical Officer. Salary at rate of £110 and £90 per annum respectively, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.

SALISBURY (GENERAL) INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SHEFFIELD, EAST-END BRANCH OF THE CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board and residence.

SHEFFIELD ROYAL INFIRMARY.—Two House Surgeons and Assistant House Physician for six months. Salary £100 per annum each, with board and residence.

SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTH SHIELDS COUNTY BOROUGH.—Assistant School Medical Officer and Assistant Medical Officer of Health. Salary £300 per annum.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich Grove, S.E.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salary at rate of £170 and £160 per annum respectively, with board, lodging, and washing.

STIRLING DISTRICT ASYLUM, Larbert, N.B.—Female Third Assistant Medical Officer. Salary £140 per annum, with board, &c.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

SUNDERLAND ROYAL INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, residence, and laundry.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Senior House Surgeon and Assistant House Surgeon. Salaries £120 and £80 per annum respectively, with board, lodging, and laundry.

THROAT HOSPITAL, Golden-square, W.—Honorary Anæsthetist and Honorary Assistant Anæsthetist. Also Honorary Surgical Registrar for six months. Also Resident House Surgeon. Salary £75 per annum.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £230 per annum, with apartments, board, washing, and attendance. Also Female Junior Assistant Medical Officer. Salary £175 per annum.

WALSALL, COUNTY BOROUGH OF.—School Medical Inspector and Assistant Medical Officer of Health. Salary £300 per annum.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anæsthetist. Salary £110 per annum, with board, residence, and laundry.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Senior House Physician. Salary £120 per annum, with board, residence, and washing.

WESTERN DISPENSARY, Rochester-row, Westminster. — Resident Medical Officer. Salary £100 per annum, with apartments, lighting, laundry, and attendance.

WHITECHAPEL DISPENSARY FOR THE PREVENTION OF CONSUMPTION.—Temporary Medical Officer. Salary £500 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon and Resident Medical Officer for six months. Salary each at rate of £125 per annum, with board, rooms, and laundry. Also Pathologist. Salary £200 per annum.

WORCESTER COUNTY AND CITY ASYLUM, Powick, near Worcester.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ballinamore, in the county of Leitrim; and at Woburn Sands, in the county of Bedford.

Births, Marriages, and Deaths.

BIRTHS.

ACKROYD.—On Oct. 20th, at Royston, Herts, the wife of Harold Ackroyd, M.D., of a son.

BROWN.—On Oct. 19th, at Kensington Park-road, W., to Dr. and Mrs. David Brown, of Tientsin, China, a son.

CADDY.—On Oct. 13th, at Richmond, Surrey, the wife of Dr. Adrian Caddy, F.R.C.S., of Calcutta, of a daughter.

DALLY.—On Oct. 20th, at 19, Upper Wimpole-street, W., the wife of J. F. Halls Dally, M.A., M.D., M.R.C.P., of a daughter.

FENNELL.—On Oct. 17th, at the Manor House, West Hoathly, the wife of Charles Henry Fennell, M.D., of a daughter.

GOOD.—On Oct. 13th, at High Bickington, N. Devon, the wife of Arnold Saxty Good, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

MACNABB—BYWATER.—On Oct. 17th, at St. Cuthbert's Church, Edinburgh, H. H. MacNabb, M.D., of Manchester, to Annie Emily, second daughter of Mrs. Bywater, of Innescote, Roxburgh.

RUSSELL—LAMBERT.—On Oct. 15th, at St. Peter's Church, Woodmansterne, Surrey, Trevor Cecil Russell, Prob. Surg. R.N.V.R., to Joyce Ethel Julia, second daughter of Colonel and Mrs. Heygate Lambert, of Woodmansterne.

SMITH-HAMILTON.—On Oct. 17th, at St. Mary Magdalen's, Mortlake, Hector Smith, M.B., B.S. Lond., R.A.M.C. (Special Reserve), to Ada Maud Hamilton, youngest daughter of Dr. Hamilton, Essex House, Barnes, Surrey.

DEATHS.

HALDANE.—On Oct. 18th, at Viewforth, Bridge of Allan, William Haldane, M.D., F.R.C.P. Edin., F.F.P.S. Glasg., aged 67 years.

HARTLEY.—On Oct. 3rd, at 26 Stanhope-road, Darlington, John Hartley, F.R.C.S. Eng., aged 63 years. For five years Senior Demonstrator of Anatomy at the Middlesex Hospital, London.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

During the continuance of the war the size of THE LANCET *will be curtailed. This has been necessitated primarily by the difficulty in ensuring an adequate supply of paper, but the contributions of most of our correspondents on the continent have failed, and will fail, to reach us. Many special features of* THE LANCET *have had to be sacrificed for the time, and while we ask the indulgence of our readers for this, we promise to restore them at the earliest possible opportunity.*

THE RUSSIAN GOVERNMENT AND ALCOHOL.

IT is reported that the Tsar has decided to prohibit for ever in Russia the Government sale of alcohol, while since the beginning of the war all Russian vodka shops have been closed, in the interests of public health and morality. In the sixteenth century the spirit trade was a State monopoly, but in times of urgent need of money it was found desirable to let the drinking-shops and distilleries to private persons for a certain rental. Changes from one system to another were frequent. By a ukase of August 22nd, 1794, the "otkoop" system (i.e., the letting to private persons) was introduced, but was replaced by the monopoly system by the ukase of April 2nd, 1819. In the "forties" the "otkoop" was again in force, and the last "otkoop" period was 1859–63. Then an excise system was proposed and accepted. The edict of June 6th, 1894, was issued by Russia to gain control over the trade, and the compulsory sale of spirit to the Crown at a stipulated price was enforced, which resulted in a large production, and stability of trade, and the export rebate was also reformed. In the next ten years there was a rapid development of the technical side of the trade, and the Crown demanded that only spirit of high quality and purity should be used for the manufacture of liquor, and this caused the introduction of improved apparatus.

PAIN IN THE HEEL.

To the Editor of THE LANCET.

SIR,—In reply to Dr. J. L. Martin's request for suggestions for treatment in to-day's LANCET, I have to say that pain in the heel is often associated with uric acid in excess. I have notes of three such cases in which all pain disappeared after voiding a small uric acid calculus by the urethra. I believe the late Sir James Paget drew attention to these associated conditions.

I am, Sir, yours faithfully,
London, Oct. 17th, 1914. SEYMOUR TAYLOR.

To the Editor of THE LANCET.

SIR,—Replying to Dr. J. L. Martin's inquiry *re* painful heel, I find the following notes in my A B C book, taken from an article in the *Clinical Journal*, April, 1913, by Mr. A. H. Tubby:—

"*Painful Heel.*—(1) A small bony spur discoverable by X ray examination; (2) shortening of one leg (common); (3) epiphysitis of the os calcis; (4) constant standing (another common cause); (5) trauma; (6) flatfoot; (7) rheumatism, gout, syphilis, tubercle."

I may say that in a case of an old lady which baffled me for some weeks the first cause was found.

I am, Sir, yours faithfully,
CHAS. W. BUDDEN, M.D. Liverp.
Hoylake, Cheshire, Oct. 19th, 1914.

HEALTH AND SANITATION OF THE GOLD COAST.

ACCORDING to the annual Blue-book, recently forwarded to the Colonial Office by the Acting Governor (Mr. W. C. F. Robertson), the population of the Gold Coast Colony and its dependencies amounted at the last Census to 1,503,386. The number of Europeans resident in the Colony, Ashanti, and the Northern Territories is given as 2590, as compared with 2367 in 1912. Among the European population a decrease per 1000 of 3·33 in the death-rate and an increase of 1·56 in the invaliding rate are recorded. Death in the case of 6 European officials was due in 2 instances to yellow fever, in 2 to blackwater fever, in 1 to hyperpyrexia, and in 1 to meningitis. There were 11 cases of yellow fever amongst Europeans, 6 of which proved fatal. Of 30 officials invalided, 4 were for malaria, 1 for blackwater fever, 1 for neurasthenia, 2 for yellow fever, 4 for dysentery, and 18 for various other diseases. Of 82 European non-officials invalided 19 were for malaria, 13 for blackwater fever, 7 for dysentery, 5 for anæmia, 2 for gastritis, and 36 for various other diseases. The total number of Europeans coming under treatment was 1179, as compared with 1004 in 1912. No means exist whereby accurate statistics relating to the health of natives can be obtained. The returns show, however, that the number of attendances for hospital and dispensary treatment was 26,661, or 697 more than in the previous year. Treatment was given for 2565 cases of malaria, 2552 of parasitic diseases, and 853 of dysentery. In all, 49,491 cases were treated during 1913, of which 264 proved fatal, the figures for 1912 being 46,234 and 257 respectively. With the exception of an outbreak of small-pox in the eastern province of the colony, in which 108 cases were treated (18 terminating fatally), the Gold Coast and its dependencies were free from any serious outbreak of epidemic disease during the year. 61 cases of sleeping sickness were reported during the year, 15 of which terminated fatally. A new hospital for Europeans is now under construction at Accra. The sanitary conditions of the Colony, Ashanti, and the Northern Territories show generally an improvement, especially in the more populous centres. In addition to other works, 12,361,215 square yards of vegetation were cleared during the year; 607 pools or excavations were filled; 265,701 square yards of marsh land were filled and drained, and 4771 drains and 16,289 pools were treated with crude petroleum. A sum of £3204 was spent during the year on sleeping sickness preventive measures and £1552 on yellow fever preventive measures. The climate, though hot and damp, is cooler than that of most tropical countries situated in similar latitudes. The Gold Coast, owing to the prevalence in the past of mosquito-borne diseases, has gained for itself an evil reputation, but the steady progress being made in tropical medicine and hygiene and the great amount of useful work carried out on the spot by the medical and sanitary authorities are gradually redeeming its character.

THE WISCONSIN STATE MARRIAGE LAW.

ON Jan. 1st, 1914, a law passed by the State of Wisconsin the preceding year, and requiring examination by the application of the recognised clinical and laboratory tests for freedom from acquired venereal disease in the case of all male applicants for a marriage licence, came into force. On June 17th judgment was given in a test case as to its validity. The principal point on which discussion turned was whether the wording of the Act called for the application of the Wassermann test, because, if so, few medical men had the required equipment or skill, and the statutory fee of $3 was inadequate. The court held (three to two) that the law did not require this test, but only such physical examination and tests for venereal disease as were within the competence of the ordinary general practitioner and his equipment.

A VERY useful statement of the causes of the war and of what it means to Great Britain is given in a little pamphlet entitled "One Clear Call," by Henry Allen Ashton, published at the price of 1*d.* by the Voluntary Publishing Association, Empire House, Piccadilly. It is intended to stimulate recruiting by showing the vital nature of the issues at stake and the imperative need for the services of every available man. The profits, if any, of the sale are to be devoted to the furtherance of recruiting.

Messrs. Pearson's Antiseptic Co., Limited, of Elm-street, London, W.C., announce that soon after the war commenced they were asked by the Admiralty to tender for supplies of a disinfectant fluid of a similar character to German-made Lysol. They submitted a sample of their Pacolol fluid, which has been adopted by the Admiralty for use in His Majesty's medical establishments.

Messrs. Hommel's Hæmatogen, of 36, St. Andrew's-hill, Doctors' Commons, E.C., contradict a statement which has been made that they are a German firm. Their Hæmatogen is made in Switzerland by Swiss proprietors, and a continuous supply is reaching this country.

Jeyes' Sanitary Compounds Co., Limited, of 64, Cannon-street, London, E.C., the manufacturers of the soluble fluid Jeysol, wish to make it known that they are an absolutely British firm and hold Government contracts.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 21st, 1914.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 15	30·022	N.E.	0·11	81	61	52	54	54	Raining
,, 16	30·148	N.E.	...	85	60	53	55	54	Overcast
,, 17	30·186	N.E.	...	75	57	52	49	52	Cloudy
,, 18	30·190	N.E.	...	77	55	49	50	53	Cloudy
,, 19	30·304	N.E.	...	87	59	47	47	48	Overcast
,, 20	30·210	N.E.	...	74	56	48	48	51	Fine
,, 21	29·932	N.E.	...	75	56	47	47	48	Fine

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

FRIDAY.

OCCASIONAL LECTURE, TO FELLOWS: at 5 P.M.

In the Robert Barnes Hall.

Professor J. C. Bose, C.S.I., C.I.E., D.Sc. (Calcutta University), will give a demonstration on the Modification of Response in Plants under the Action of Drugs.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Discussion on the Operative Treatment of Tumours of the Cæcum and Colon—especially in Relation to Immediate Resection, Colostomy combined with Secondary Resection, and Short Circuiting (introduced by Mr. H. J. Waring, Mr. J. Sherren, and Mr. E. M. Corner). Exhibition of Specimens.

HUNTERIAN SOCIETY, Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—4.30 P.M., Presidential Address:—Dr. T. G. Lyon: The Barber-Surgeons and the Medical Profession. (Illustrated by an exhibition of objects of interest belonging to the Worshipful Company of Barbers.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Museum Demonstrations for Advanced Students and Medical Practitioners:—

MONDAY.—5 P.M., Mr. S. G. Shattock: Specimens illustrating Tuberculosis.

WEDNESDAY.—5.30 P.M., Mr. J. F. Colyer: Specimens of Dento-alveolar Abscess and Dental Cyst.

FRIDAY.—5 P.M., Prof. A. Keith: Gunshot Injuries of the Thorax and Abdomen.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Eye Department.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 10.30 A.M., Dr. Simson: Gynæcological Demonstration. 12 noon, Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 12 noon, Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Lecture:—Dr. J. Taylor: Clinical Cases.
FRIDAY.—3.30 P.M., Lecture:—Dr. J. Taylor: Clinical Cases.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Dr. K. Sibley: Alopecia.
THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Lichen and Lichenification.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill street.—4.30 P.M., Dr. C. E. Lee: Myasthenia Gravis.

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

MONDAY.—10 A.M., Obstetrical Lecture: Abnormal Presentations. 11 A.M., Examination of Patients and Minor Operations.
TUESDAY.—10 A.M., Major Operations.
WEDNESDAY.—10 A.M., Obstetrical Lecture: Abnormal Presentations (continued). 11 A.M., Examination of Patients and Minor Operations.
THURSDAY.—10 A.M., Major Operations.
FRIDAY.—10 A.M., Gynæcological Lecture: Anatomy of the Uterus. 11 A.M., Examination of Patients and Minor Operations.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

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